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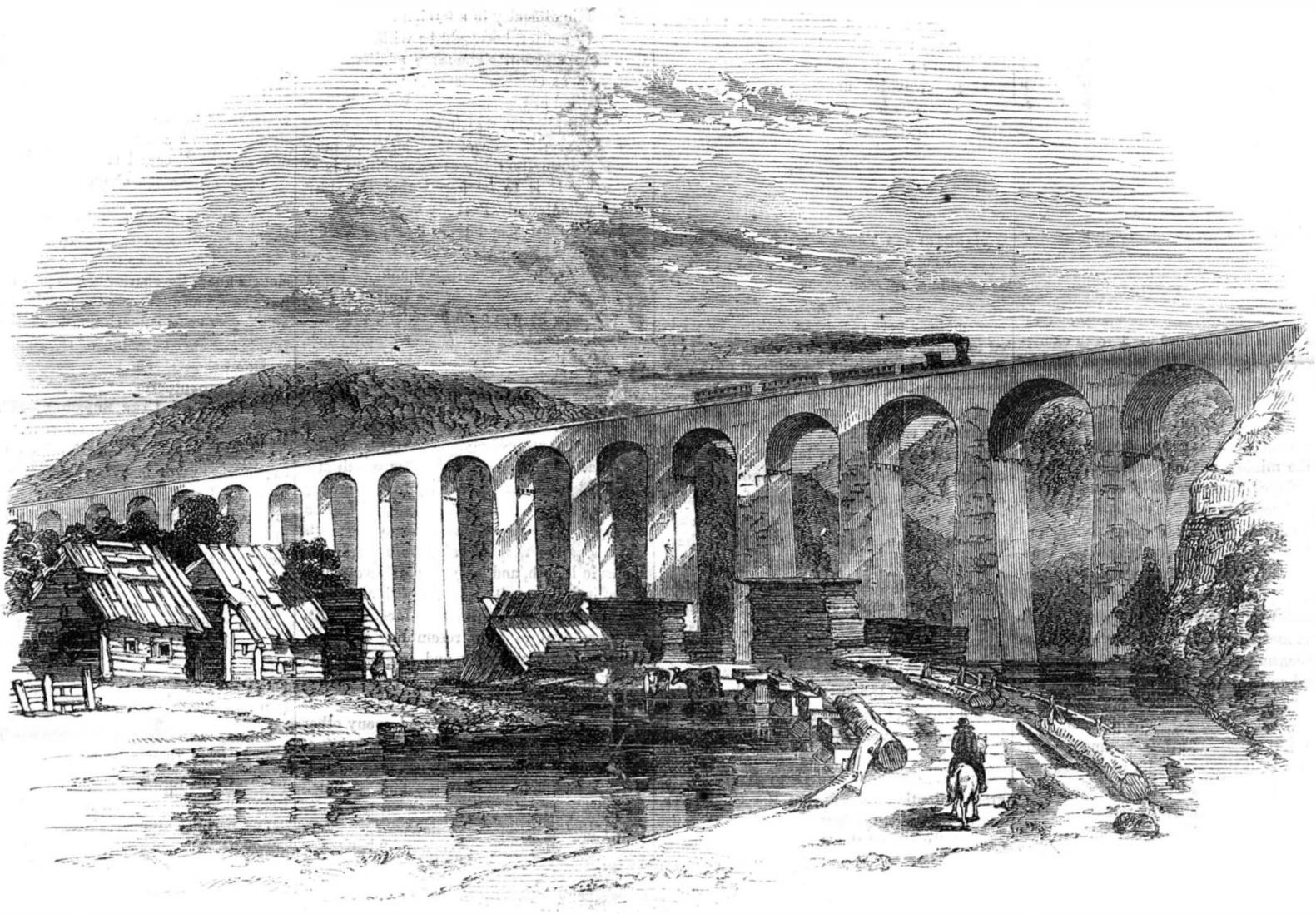
STARRUCCA VIADUCT, ON THE NEW YORK AND ERIE RAILROAD.

It is our intention to publish, in three successive numbers, works of Railroad Engineering, and illustrate the same; we commence this week with a view of the Starrucca Viaduct—a work justly celebrated in our country. This great work carries the New York and Erie Railroad over the valley of the Starrucca, through which there flows a small stream that enters the Susquehanna River at Lanesboro', Pa. The design was prepared by J. W. Adams, the superintending Engineer of the division, and approved of by the Chief Engineer, Major Brown. and the Consulting Engineer, Horatio Allen. The length is 1040 feet; the average height from the bed of the valley is ninety feet. It has 17 arches of 51 feet span each; the piers are 22 feet long, and this is the extreme width of the mason work at the grade of the road; the piers at the springing line are 7 feet thick; the abutments are 30½ feet thick. The stone used is a light gray sandstone. In this work there are 21,259 cubic yards of masonry, brick and concrete included. It was begun in 1847 and finished in 1848. It was a fortunate circumstance that the stone was found not far from the bridge, in the valleys of the Susquehanna and Starrucca. A railroad track was laid from the bridge to the quarry, in the Starrucca valley, and thus the stone was cheaply and easily brought to the place ready to be built in.

The railroad branched off about a mile from the bridge—one branch running up to the scaffolding on the north side, and the other returned by the south side. Thus the loaded cars came up one branch and the empty ones returned by the other: this was a most excellent plan. We know of a coal mine that has a branch railroad running to the point of



shipment; the loaded cars descend an incline, and are dumped into the vessels, and then return empty. A loaded train descending the incline, pulls up the empty train by a rope, and thus no power but gravity is employed to carry the coal more than a mile from the mine. This hint may be useful to some who read this; the fact was brought to our remembrance by the branch railroad used at the Starrucca, on which, however, the stone cars were not operated like the ones which carried the coal.

The faces of the stones are rough, but they are all cut to fit—each in its appropriate place, and as a work of American stone architecture, it has been justly praised. We have but few stone bridges in our country: the Aquaducts of the Cohoes, over the Mohawk; the Scoharie over the Scoharie Creek, and the Rochester one over the Genesee River—all on the Erie Canal—are great works of masonic architecture, and of greater magnitude than the Starrucca Viaduct; still, as we have said, there are not many stone bridges in our country; timber bridges can be erected at so much less expense, and they have answered so well on our railroads that they are preferred for the sake of economy. On the New York and Erie Railroad, iron bridges, after some trials, were condemned, and we suppose that the general opinion is in favor of wooden bridges. Were it not for the great expense, stone bridges would generally be preferred; the expense is the obstacle to their general introduction in all cases. In Great Britain the bridges are all built of stone, with the exception of a few of iron. Some of them are works of immense magnitude, being carried over houses and streets in some of the cities. We should like to see more free-stone structures in our country; when well built they are cheapest in the end, if the stone is not too expensive when delivered at the point of erection. We are glad to see and know that stone fabrics are becoming more common throughout our country. The new buildings erecting in New York are mostly of brown free stone, and they look beautiful. We hope that our railroad engineers, when they can prudently do so, will always build bridges of the same materials (leaving out the brick) as that which compose the structure that illustrates this page.

The Starrucca viaduct is 190 miles distant from New York, on the railroad; and it surpasses every other structure on the line. The original intention of the company was to raise a large embankment across the valley, and avoid the expense of the viaduct, excepting for a small bridge. The cost of it was $320,000; and, although a cheaper structure might have answered, still, we rejoice, as do all those who like to see noble and grand works of engineering, that this work was substituted for two mounds of earth, faced with stone.

It cannot be seen, so as to form a true idea of its magnitude or beauty, by persons travelling on the railroad; they see and know that it is a great piece of engineering, but that is all. It must be seen from the valley below to form a respectable idea of its greatness. We mention this, so as to prevent people who may be travelling on the New York and Erie railroad being disappointed.

Elevations, sections, and specifications of this work, are published in the work of George Duggan, on American bridges. The notes to the work in question, for which we are indebted for the facts, were furnished by our old friend, that able engineer, Jas. P. Kirkwood.

Within a few weeks, the question of building a bridge across the East river, in this city, has been somewhat discussed. We will have something to say upon this subject next week.

It is desirable that we should have a bridge between Brooklyn and New York; the question now is, can one be built which will not obstruct the navigation, and at the same time prove convenient and safe to the public. We think the thing can be done, and will present the plan of it in our next number.

Diamonds in Australia.

THE *Bathurst* (N. S. W.) *Free Press* says: "For some time precious stones have been supposed to exist in this district. One, the other day, was forwarded by Mr. Hardy, the Commissioner, to the Colonial Secretary. It has since been inspected by a Sydney lapidary, who pronounced it to be a diamond of the first water, value, $250.

To Correspondents.

Articles sent to us for publication, if not used, must not be expected to be preserved until called for; we have not room for one-twentieth of the articles sent to us. Correspondents should keep duplicates.

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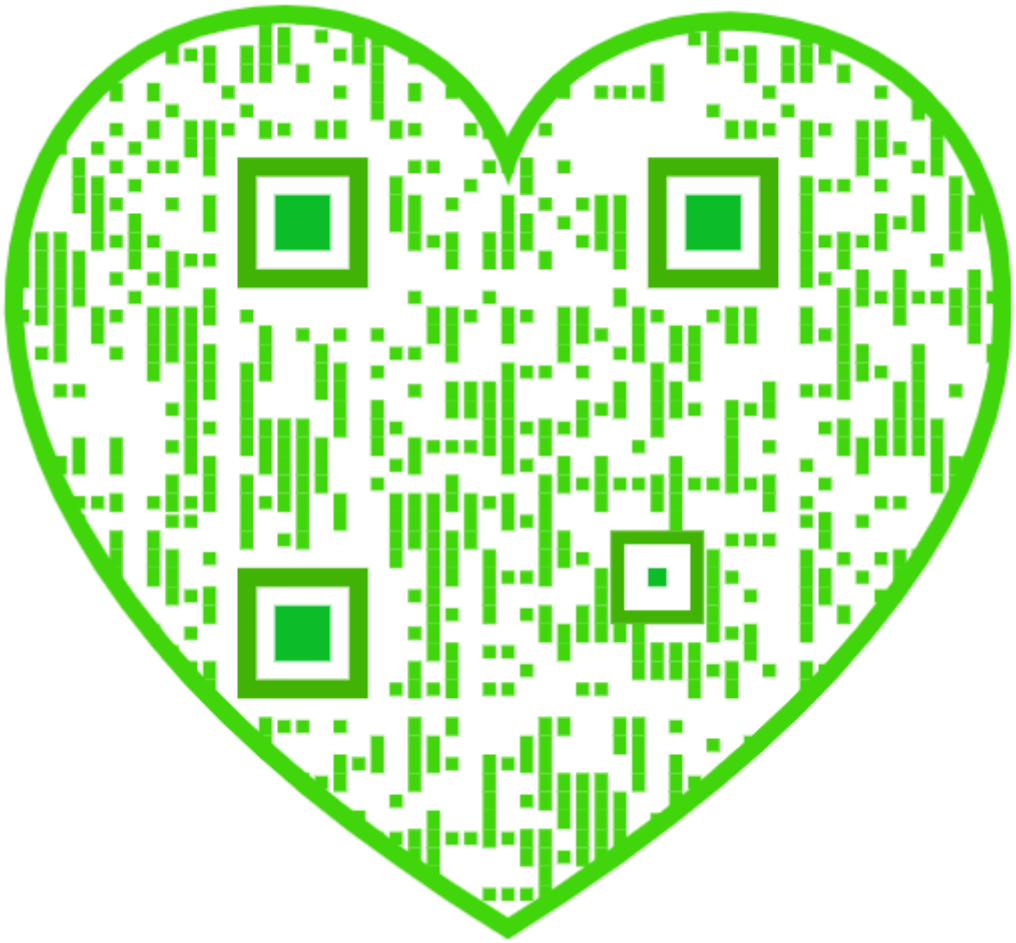

MISCELLANEOUS.

Foreign Correspondence.

London, Jan. 6, 1852.

The Late Great Exhibition.—It is a long time since I sent a letter to the Scientific American, and perhaps what I have now to say may not be so very interesting; still I think it must interest many of those who read my former letters, to know something about the present state of the Crystal Palace. All the wooden partitions have been torn down. The immense expanse of the noble nave, now cleared of its varied and thickly studded contents and its swarming crowds, the interminable sweep of the aisles, which can be seen at a glance from one end of the building to the other, the long lines of delicate-looking taper columns, and the airy lightness that pervades the whole, impress one with feelings of admiration at the grandeur and simplicity of the design, the harmony and perfection of the arrangement, and the wondrous skill and ingenuity displayed in the execution. The building is now to be seen in an aspect which it never presented in any stage of its erection—while progressing towards completion it was in the possession of two antagonistic powers, the exhibitors and the workmen, and the retreat of the one was the signal for the invasion of the other; and thus bit by bit the building was finished, the boardings and counters run up, and the goods displayed, so that no opportunity was afforded of forming an accurate idea of the beauty of the crystal shrine which enclosed so many and such varied treasures. The first impression the building conveys, to even those who have paced up and down its aisles and galleries for months, is a feeling of novelty that is absolutely startling. The contrast between what it was last summer and what it is now, is so striking that the mind is unprepared for the marvellous change, and it experiences all the pleasure of a fresh excitement, while the effect of the whole is most favorably heightened by the delicate azure tint of the framework. The broken shelves, timber, &c., form a formidable pile in one of the carriage courts. Along the southern wall, where the mining and mineralogical classes were displayed, there are still some very handsome specimens of imitations of oriental marbles and veined timber for decorative purposes, which have been presented to the trustees of the National Museum; and, now that the articles piled about it have been removed, here stands a very remarkable object, Glover's great gas metre, which is capable of calculating the consumption of 3000 lights, and which registered and regulated the supply of all the gas consumed in the building for either lighting or cooking purposes. The piles of coal, iron, slate, granite, and other specimens of the raw material, which covered a large area outside the building at the western extremity, are all removed, and nothing now remains but the boiler honse in which the steam for the machinery was generated. Within this portion of the building all is solitude and repose, outside all is barren and desolate.

The entrances are no longer guarded by the police, and all privileged persons are allowed to enter free. There are still, however, many things lett and some of these are labelled "for the Exhibition at New York." There are still numerous ranges of empty glass cases, standing in the galleries; and, at the corners of the transept, piled in a solid mass, some twenty feet high, are the seats which were ranged along the avenues.

In a short time the whole of the interior will be cleared out, and then it will be opened free for a time to the *sans-culottes* of Cockneydom, and a right keen clipper set they are. It is not decided what will ultimately be done with the building. It was once my opinion that it would be removed, but it may be retained for a garden, as has been suggested by the great Paxton himself. Excelsior.

Magnificent Spectacle.

The St. Anthony Express states that the bed of the Mississippi river below the falls has presented a grand scene during the past few days. The ice, which forms far up the river, in coming down over the rapids and falls is crushed up fine, filling in against the body of ice which had formed across the channel some miles below the falls on Thursday last. By Friday morning the water had risen near fifteen feet, and the white field of ice had grown up almost to the foot of the fall; at this stage, the body below unable longer to sustain the immense pressure, gave way, and the whole plain of ice moved down the stream with a terrible crushing. We have been informed, by those who know, that this is the first year in the last twenty-four in which this has occurred.

Scientific Memoranda.

India Rubber and Gutta Percha.—At a recent meeting of the Paris Academy of Sciences, M. Payen communicated the result of his investigations into the properties and composition of caoutchouc. This substance appears, to the naked eye, to be homogeneous and continuous; but strong magnifying glasses show it to be filled with a vast quantity of irregular pores, communicating with each other. It is far from being impenetrable, for thin scales immersed in water for a month, increase 18.20 and 25 per cent. in weight. It may be resolved into seven distinct component parts: a soluble principle; a tenacious, elastic, dilatable principle, a certain portion of fatty matter, an essential oil, a coloring substance, traces of azote, and water, often to the amount of 25 per cent. M. Payen proceeded in the same manner with gutta percha, and found it to be much more easily resolvable into its component parts, which are nearly analogous to those of caoutchouc; and as its elementary composition almost identifies it with that substance, the experimenter was struck with surprise at the widely different character, and the distinct applications of these singular products of nature.

Manures and Trees.—M. Chaudier, at the same sitting of the Academy, presented a very interesting paper on manures for trees. He had experimented for a great number of years, and had been very successful. When he wished to employ azote as a fertilizer, he used the salts of Ammonia; and for mineral fertilizers, he employed wood ashes. His paper has created no small sensation in Paris, and out of it, too, among some classes, we suppose; but he only presented what has long been practiced among our American farmers—not for trees, for our farmers are more troubled to get rid of than to raise them—but upon their corn and potatoes; ground gypsum and wood ashes have long been employed by our farmers, by sprinkling them around hills of corn; and the azote substances are employed in the first manuring. It is evident to us that the French, in this department, are but coming up to some of our practices in Agriculture; yet there can be no doubt but, with the great chemical knowledge of the French, they will make many new and important discoveries in Agricultural Chemistry.

Improvement of the Ohio River.—The great detention to trade on the Ohio river, caused by its annual low stage of water, must necessarily attract the attention of the States through which it and its tributaries flow, to any feasible plan for its improvement. Charles Ellett, jr., Esq., an engineer of acknowledged talent, has been for some years engaged in making observations and examinations, with a view of affording, at all times, a stage of water on that river, of sufficient depth for the passage of steamboats of a heavy draught. The results of these observations have been published under the patronage of the Smithsonian Institution. He proposes, by a series of dams or reservoirs on the tributaries of the river, to feed it in dry seasons, so as to afford a depth of water of from three to five feet. The immense advantages of such an improvement to all the States watered by the Ohio and its tributaries are too obvious to need elucidation. The plan is certainly practicable.

Fires at Sea.—The New York Commercial says that while the Amazon was building, an offer to fit her with an apparatus for extinguishing fire, by means of the steam from her boilers, was declined, because it would involve an expense of £200. At the same time it is said that both the manager and engineer "appeared to be of opinion that the plan was the best they had ever heard of, and that no fire could live under the torrent of steam which might be projected by it into any or all parts of the vessel."

Maryland Mechanics' Institute.

Mr. Stansbury, Commissioner to the World's Fair, delivered an able lecture, two weeks ago, before the Institute, the subject being "The World's Fair." He stated that Hussey's Reaper had been successful, as well as M'Cormick's, but this was subsequent to their first trial in England. He spoke eloquently of the American triumphs, but stated that distance and the want of government assistance, contributed unfavorably to an American display. Only for the liberality of Mr. Peabody, our country would have been disgraced. "At a time," he said, "when every American in London was agitated with painful solicitude as to the means by which we were to be enabled to make a respectable appearance, Mr. Peabody nobly came forward and advanced a large sum, without interest, and without, if I am correctly informed, anything which a business man would call security. But the exactitude and justice of his country were a sufficient guaranty for him that he would not be allowed to suffer loss. When the question of the repayment of this loan threatened, at the close of the Exhibition, to produce an unpleasant state of feeling among our countrymen, Mr. Peabody declared that, rather than expose them to the discredit of a public difficulty in a foreign land about a pecuniary matter, he would be willing to lose the entire amount. The same admirable generosity was constantly manifested during the entire period of the Exhibition, in acts of munificent hospitality, which excited the attention and surprise even of the English, among whom profuse liberality of expenditure is so common. It is to be hoped that the spirit which animated Mr. Peabody may be responded to by Congress and the country in a manner worthy of themselves and of him."

Mr. Peabody deserves the thanks of every man, woman, and child in the United States; and we hope he will soon be repaid, and some public testimonial given by our countrymen, to show that republics are not ungrateful.

More about the California Nutmeg.

The *Pacific* (California) says: "We have been shown a specimen of this remarkable fruit, and also a branch of the tree which produced it here, from its locality in the mining region. The tree is of the family of laurels, an evergreen, and attains a large size. Its leaf is long and narrow, being from one to two inches in length, and only one or two-tenths of an inch in breadth. The fruit is about the size of an ordinary Molucca nutmeg, but a little more oval in form, resembling it almost exactly, both externally and internally, and possessing its aromatic flavor. It is enclosed in an aromatic capsule, of a substance resembling mace, as the nutmeg and many other nuts are. The miners are in the habit of using it in the place of nutmeg, for which it forms a complete substitute. The specimen we have seen was gathered about ten miles from Coloma, between the North and Middle forks of the American river. It is believed that this tree is an entirely new species, and only affords another trophy of the natural richness of our State."

All our nutmegs are obtained from the East Indies; but in a few years, we suppose, we will not only be able to raise our own tea, but also our own nutmegs and coffee.

The British Government and Steam Navigation.

Uncle John, across the water, is up to snuff in many things, and takes the lead, too. In employing marine steamships as Mail carriers, he has exhibited a most excellent example to the whole world; and we hope Jonathan will profit by his dad's example.

The British government has advertised for tenders for conveying mails by screw steamers between the Cape of Good Hope and Calcutta, via the Mauritius and Ceylon. This will establish a steam-packet communication between the Mauritius and England, both by the Cape and overland routes. It will also connect the Cape with the overland route. When the contracts for conveying mails at present advertised for, are all taken, there will be a steam-packet communication with every important English colony and possession in the world, except New Zealand, and Vancouver's Island. The total cost to the country of the mail packet service, may be set down ai £850,000 per annum; and next year this sum will be increased to £1,000,000, about $5,000,000.

Cure of Rheumatism.

"About ten years ago," says the *Green Mountain Freeman* (Vt.) "old Mr. G., of Berlin, who, for a long time previous, had been cramped to a perfect cripple by the rheumatism, was got on to one of the two loaded teams which were fitted out from his farm to Burlington, both he and his family, thinking he could drive one of the teams safely while keeping company with the teamster of the other. While passing through Bolton, however, he got upset and broke his leg so badly that it was with great difficulty he was got home, and still greater that his recovery was effected. But from the moment of his fall, and as for many months believed, fatal accident, his rheumatism wholly left him, and he has not had one twinge of it since, but is now, at the age of eighty-five, quite as smart and spry as old men in general, and we think more so.

Can the Medical Faculty explain this curious fact? At all events, may it not furnish them with a hint which may be turned to account in devising remedies for this annoying disease?

[The Medical Faculty cannot explain the cause, they only know of such things by experience; medical science is one of experience entirely; and it is well known that many diseases have been caused by frights and fear; they also know that what has cured one person of a certain disease has failed to any other. Many cases like the above are on medical record.]

Railroad Items.

Railroad across Florida.—The Commissioners under the charter of this proposed road, have issued an address to the people of Florida, and have opened subscription books. It is estimated that the grading of the road will not cost more than $200,000, of which sum the State is pledged to subscribe $80,000.

Railroad to Lake Superior.—The Railroad Journal states that an effort will be made this winter to secure a line of railroad to Chicago, by the way of Woodstock, Illinois, and Fond du Lac, Wisconsin, to Lake Superior, a grant of land simllar to that given to the Mobile and Chicago line. Petitions for this object, says the Journal, are being circulated all over the northern part of Illinois, and throughout Wisconsin.

This road is designed to connect with the Mobile and Chicago road, forming a continuous line from the Gulf of Mexico to Lake Superior. It is a grand scheme, and one which, we trust, will be carried out.

Girard and Mobile Railroad.—The Columbus (Ga.) Enquirer learns that operations were commenced on the Girard and Mobile Railroad on the 29th ult, and that one hundred hands will be employed in the business of grading. The Enquirer expresses the opinion that this will be one of the most profitable railroads in the country.

Telegraph Statistics.

It seems that there are already, in the United States and Canada, more than 12,000 miles of wire, involving a capital of more than $3,000,000. To work these lines costs, annually, 720 tons of zinc, worth $57,700; more than a million pounds of nitric acid, worth $117,800; and $27,000 worth of mercury; besides a considerable value in sulphuric acid, &c. On the line from Pittsburg to Cincinnati alone, there were transmitted, in the year 1850, 364,559 paid despatches, and the revenue received was $73,278.

[The above is from the proceedings of the Wa-ca-ma-ha-ga Club, which hails from Brooklyn: it is very good for an association of gossipping old wives.

Fish Stories.

We have some articles—fish stories—about the freezing of fish, which we will present next week, and settle the question about frozen fish coming alive again.

On last Sunday a large piece of the rocky bed of the Horse Shoe Fall, at Niagara, fell. The portion was about 100 feet, and includes the rock at the right of the bridge.

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Layard, the Traveller, and the Mechanics of Northampton.

On the 17th of last month, the Mechanics' Association of Northampton, Eng., had an annual soiree to commemorate the opening of their new buildings. No less than 800 persons were present, and, among a host of celebrated men, there stood Layard the renowned traveller. He made a most interesting speech, He said:—"Those who, like himself, had been absent for some years from his native country, were deeply impressed with the great change that had taken, and was still taking place, in the moral, social, and political characteristics of England. He was proud to say that that change was all for the better and not for the worse. It was a change which was visible in every department of English society, visible alike in the mansion and the cottage—and, above all, visible—and he thought that was its great result—in the better feelings which existed among the different classes of the community. That progress he would fain attribute to the diffusion of education throughout the country, and especially among the humbler orders, by means chiefly of the formation of institutions and societies such as the one of which they were members. The people of this country had a great social question to determine, and one which they should solve as soon and as fully as possible. They had given the very best education to all classes of the community, and those whom they had so educated and taught to thirst after knowledge and to love it, were now attaining that position in which they demand the gratification of that love. The question, then, was, how were they to do it? Was that passion for knowledge to be turned to the advantage and benefit of the community, or to its injury and detriment? The answer to that question was to be found in such institutions as that whose members he had then the honor to address. Such institutions were and should be self-supporting and self-regulating, but they should also receive to as great an extent as possible the sympathy and assistance of all those who, by their talents, their acquirements, their fortunes, or their influence, could give them substantial and beneficial aid. He would say one word more. He would extend the operation of those institutions as much as possible. Whilst enabling them to convey knowledge to the people of all classes, he would also aim at making them, if possible, the means of improving and elevating their taste. Whilst collecting libraries he would also store those institutions with works of art, with models of the finest sculptures, and copies of the greatest masters. The Greeks, who, above all other nations, understood the influence of the beautiful, not only in the happiness of mankind, but in the regulation of society, rightly appreciated the influence of art on the community.

For himself he looked anxiously for the time when some small part of the tens of thousands of pounds annually spent in the pursuit of war and the repression of crime, would be given to the diffusion of art, which, he believed, would do far more than any other thing to prevent slaughter and repress crime. A vulgar prejudice had long prevailed in this country, that its laboring class had no taste for the beautiful, and that if they had free access to the exhibition of works of art they would destroy them. He thought that one at least of the many results of the Great Exhibition had been to explode that vulgar error. He might mention, whilst talking on that subject, that during the time the Crystal Palace was open, no less than 3,000,000 of persons, by far the greater part of whom might be presumed to belong to the lower classes, had access to the British Museum, and in the whole of that period not one single accident of any kind took place, nor was any misdemeanor committed in the institution in consequence of the admission of that vast mass of visitors. (Cheers.) He did say that it was a great fact. He himself had the honor—and he did think it was an honor—to conduct over the British Museum two hundred working men from the mines, who came to London to see the Exhibition, and the interest which that body of men evinced in the works which there came under their inspection was to him, above all things, gratifying and promising.

He was about going to regions where there were no mechanics' Institutes. Those men however, wandered among the remains of great cities, the existence of which indicated a state of civilization which equalled, if it did not excel, our own. That was a solemn reflection. In speaking of the ruins of Babylon or Assyria, they must not picture to themselves temples and monuments such as were to be seen in Italy. Those ruins, on the contrary, consisted of vast mounds of earth, something like the ancient burrows to be found in this country, and some of them were as much as 3,000 yards in length, and occupied many square acres of ground. Those vast mounds were literally the heaps to which the prophet Isaiah referred, when speaking of the ultimate fate of those cities which were, in his days, as flourishing, as great, and as populous as our own London was at present. The words which the prophet used in speaking of Nineveh in particular had literally been fulfilled, so much so that if he (Mr. Layard) wished to convey to them a correct idea of the present state of the ruins of Babylon and Assyria, he could not do so to greater advantage than by quoting the very words prophetically employed in the Holy Scriptures. [Hear, hear.]—Those heaps had been objects of great and melancholy interest to the traveller. The mode of construction employed in those edifices accounted for the present state of their ruins. They were chiefly erected in the midst of great plains, where the want of stone rendered solid masonry exceedingly difficult and expensive. The consequence was, that the builders were driven to the use of mere mud in the erection of those palaces, mixing it up with chopped straw, and making it into bricks, which they dried in the sun. Those temples were used as great national records. Upon these walls the people of those days engraved the history of their national exploits. The art of printing being unknown, they were compelled to record their history on the walls of their public edifices. With that view the lower stories of those edifices were built of alabaster, a substance exceedingly well calculated to perpetuate the pictorial representations of their great national events, and the explanatory descriptions with which they were accompanied. The upper parts of the building were constructed entirely of the sun-dried bricks which he had described, and the consequence was, that when in the lapse of time the materials of the upper stories decayed, they eventually fell in and buried in their *debris* the imperishable memorials beneath. So soon as the sun-dried bricks, which had once formed part of the masonry, were exposed to the atmosphere, they returned to their original state, which was nothing but earth; and thus those heaps of ruins became covered with a kind of soil susceptible of various kinds of cultivation adapted to the wants of the population. That would explain to them the state of those ruins, and would also account for the excellent preservation of monuments which were found beneath them. Excavation at last established the existence of these monuments; and the meeting might conceive the gratification and pleasure he experienced when on the verge of reaching a magnificent specimen of ancient art, which showed him that he had at last found one of the monuments of the people for whose remains he had instituted a search. [The enterprising traveller and antiquary then gave an interesting account of the means taken by Colonel Rawlinson and himself to decipher the trilingual inscriptions, &c., found on the memorials which were excavated, and of the beautiful labyrinthine chambers discovered among the ruins.] The result of those discoveries had been completely to silence the common remark that there was no human confirmation of many of the historic facts related in the Bible. They possessed now a valuable collection of cotemporary records, executed at the time when many of the most important events mentioned in the Scriptures were performed, ascribed by those who were actors in those events, and completely tallying with the facts described by the sacred historians. In conclusion they would allow him to say he was convinced that institutions like that with which they were identified, tended more than any other to advance the progress of human knowledge among all the classes of the community, and therefore it was that he felt proud to be called on to move the resolution which had been put into his hands—'That the best result had arisen from the formation of mechanics' institutions, as is shown by their tendency to soften the inequalities of condition, by the influence they lend to harmonize discordant opinions, and by their assistance unite together the great family of mankind in the bonds of mutual confidence and love.'"

Snake Plant of South America.

Venomous serpents abound in all the hot lands of America. The frequent fatality following their bite—particularly among the Indians, who roam barefoot through the tangled woods—renders the knowledge of any counteracting remedy of great importance to these people. In consequence, much diligence has at all times been used in seeking for such remedies.

That of surest virtues yet known is a plant called the *guaco*—the sap of whose leaves is a complete antidote against the bite of the most poisonous reptiles. The guaco is a species of willow. Its root is fibrous, its stem is straight and cylindrical when young; but as it approaches maturity, it assumes a pentagonal form, having five salient angles. The leaves grow lengthwise from the stem, opposite, and cordate. They are of a dark-green color mixed with violet, smooth on the under surface, but on the upper rough with a slight down. The flowers are of a yellow color and grow in clusters—each calyx holding four.

The guaco is a strong healthy plant, but grows only in the hot regions, and flourishes best in the shade of other trees, along the banks of the streams. It is not found on the colder uplands, as here exists not the venomous creatures against whose poisons the guaco seems intended as an antidote.

That part of the plant which is used for the snake-bite is a sap or tea distilled from its leaves. It may be taken either as a preventive or cure; in the former case enabling him who has drank of it to handle the most dangerous serpents with impunity. For a long time the knowledge of the antidotal qualities of the guaco remained a great mystery, and was confined to a few among the native inhabitants of South America. Those of them who possessed the secret were interested in preserving it, as through it they obtained considerable recompenses, not only from those who had been bitten by venomous snakes, but also from many who were curious to witness the feats of these snake-tamers themselves. However, the medicinal virtues of the guaco are now generally known in all countries where it is found; and its effects only cause astonishment to the stranger or traveller.

The tradition which the Indians relate of the discovery of its virtues is interesting. It is as follows:—In the tierras calientes there is a bird of the kite species—a *gavilan*, whose food consists principally of serpents. When in search of its victims, this bird utters a loud but monotonous note, which sounds like the word *gua-co* slowly pronounced. The Indians allege that this note is for the purpose of calling to it the snakes, over whom it possesses a mysterious power that summons them forth from their hiding-places. This, of course, is pure superstition, but what follows may nevertheless be true. They relate that before making its attack upon the serpent, the bird always eats the leaves of the bejuco de guaco. This having been observed, it was inferred that the plant possessed antidotal powers, which led to the trial and consequent discovery of its virtues.

The way the Indians first inoculate themselves is as follows:—They take a handful of this plant, crush them between stones, and pour some hot water on them and make tea, and swallow two spoonsfull. The hands, breast, right and left sides, and feet are inoculated with it, and after that they can handle the most poisonous snakes. After the first inoculation there is no necessity for any other; by drinking some of the tea, or chewing the leaves and swallowing the juice it affords an effectual remedy to the poison of the most venomous serpents.

Honor to America.

MAURY'S WIND AND CURRENT CHART.—The British Army Despatch contains an article on the above subject, in which the writer renders a liberal and generous tribute to the merits of our American improvements in the art of navigation. The following is an extract of the article in question:—

"We have to acknowledge the receipt of these valuable charts by Lieut. M. F. Maury, United States Navy, of the National Observatory, Washington. We pronounce them at once to be the most beautiful specimens of nautical engraving we have ever seen; as elaborately finished as they are scientific in their detail. They are accompanied by a notice to mariners, approved by the Hon. W. B. Preston, Secretary of the Navy, and published by the authority of Commodore Lewis Warrington, Chief of the Ordnance and Hydrography. We very much question whether these charts do not herald another American triumph in this year of wonders; at least we have seen nothing like them in this country. So far, indeed, are we from such scientific results, that we seem to be one hundred years behind the labors of Lieutenant Maury. We do not say that it requires one hundred years to overtake or even pass him, but as it is, we are so far, if not further, from the laborious productions of this gentleman. Yet how can we wonder at this, when we consider the manner in which naval affairs are conducted in this country? In America there is no respectable owlery sitting to decide on building experimental vessels at the expense of the nation, to satisfy the avarice of rapacious official flunkeyism, to listen to the reports on the lines of vessels, or to build iron steamers without knowing stem from stern. There all is sound and practical. The best man wins, whether he tacks lieutenant or admiral before his name. Here we have the school of pig-tails and Tom Pipes making uneasy efforts to adapt itself to the march of science, 'upon the mountain wave' as well as elsewhere."

Great Cave in California.

In the county of Calaveras, California, there exists an immense cavern under solid stone, which has been called by the miners of that district, for some time, Solomon's Hole. It is situated in limestone, and the descent is from the side of a hill, on the west side of the creek. The opening is three feet in diameter, and the descent vertical for about thirty feet. At this point a mass of limestone rock forms a platform some six or eight feet in length; the next descent is to the right of the plat some five feet, and eighteen feet vertical; at this place a smaller stage occurs, sufficient only for one man to stand upon.

This place, from its form, is called the Liberty Cap; it is of a stalactite formation and is 15 feet high, being composed of four or five of these, apparently cemented together, and resting on a table jetting from the main ledge, with circular stalactite hanging pendant from its sides. From the "Cap" the descent is near 100 feet.

The shape of the first chamber is that of a bishop's mitre; the space from the right to the narrowest point on the left, is 50 feet, and it expands to a width of 300 feet in diameter, covered with curtains of stalactites.

A large mound occupies the centre of this room, 50 feet in height, and 70 feet in diameter, composed of loose stones and earth, that were washed in from the top, and contain gold.

This cave is now explored to the depth of 450 feet, but as yet the bottom is not found. Two other apertures of greater depth are still known to exist, below those named, and until more efficient means are used, they must remain unknown; but the company who have now located it, are determined to find its bottom.

California Quicksilver.

The New Almaden Quicksilver Mines are now in full operation, giving employment to two hundred or more of laborers, and yielding about 10,000 pounds of quicksilver daily.—The company are excavating a passage into the hill from which the cinnabar is taken, through which, by means of cars, it can be run out more rapidly than by the present method, and with greater ease to the workmen. This improvement will cost the company a large amount of money, but when completed will greatly facilitate their operation. The ore is now raised to the surface by shafts, and brought down the steep hills pack mules.

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NEW INVENTIONS.

Improvement in Watch Swivels.

Mr. W B. Carpenter, of New York City, has invented certain new and useful improvements in watch swivels; the said improvements are applicable to swivels employed for various purposes. The swivel consists of two eyes of the same form, which are fitted into separate hollow sockets; the one socket is fitted within the other and is capable of turning freely, but is prevented from drawing out. The hook and opening piece of each eye of the swivel are made entire, in the form of a loop, with a small knob attached, which fits into the end of its socket; this knob is in the form of the segment of a sphere, and cut through obliquely, so as to leave one part attached to one side of the loop, and the other to the other side of it. The knob is then placed in its socket, and one part is soldered so as to prevent its moving. The socket and knob are then drilled through, and a pin fitted, and the socket turns on this pin. Although the improvement is made on a small piece of mechanism, yet it is a very important invention, owing to the usefulness and the general employment of swivels for so many purposes, and for watches especially. Measures have been taken to secure a patent.

Improvement in Permanent Moulds for Casting.

Mr. Nathan Mathews, of the firm of Edwards, Morris & Co., of the city of Pittsburg, Pa., has invented and taken measures to secure a patent for a most excellent improvement in moulds for casting. There is a great deal of difficulty attendant upon the casting, in permanent moulds, of articles requiring dovetails, and similar tongues and recesses in them, owing to the difficulty of separating the article from the mould; this improvement obviates this difficulty in a great measure. The parts of the mould which form the cores of the dovetail of a circle plate of a lock, or door knob, made of glass, porcelain, stoneware, &c., can be withdrawn easily, and so can all the other parts. The improvement will effect a great saving in the casting of such articles, both as it respects the producing them more sound, and the saving effected by obviating the damaging of work.

Improved Method of Securing Circle Plates.

Mr. Matthews has also taken measures to secure a patent for an improvement in securing the circle plates of the knobs or handles of locks and doors, the said circle plates referring more particularly to those of glass, porcelain, stoneware, and such like materials, which are liable to be easily broken by the common means of attachment; the improvement, however, is also applicable to metal circle plates. It consists in casting or forming the circle plate with a recess on its inner face, having tapering dovetail sides, which fit to two small dovetails on the door or lock, or on a plate secured to the door or lock. The circle plate is merely placed up against the door or lock, and dropped on the dovetails; when the spindle or knob is put in its place, it holds the circle plate secure in its place. These improvements of Mr. Matthews are exceedingly valuable to those engaged in his business.

Improved Extension Ladder.

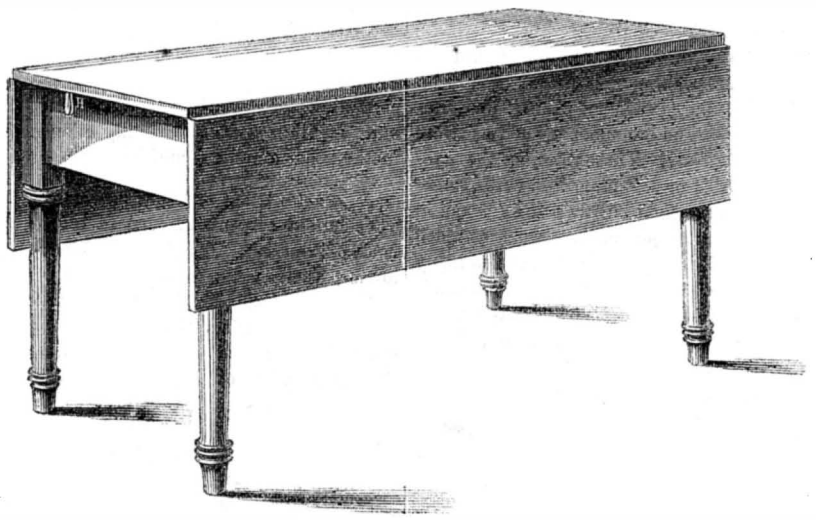
Mr. George Whitcomb, of Greenwich, Fairfield Co., Conn., has invented a useful improvement in the form of an Extension Ladder, which will prove very beneficial in cases of fire, &c. Two or more ladders are connected together, one fitting between the side bars of the other, and so arranged that one of the ladders may be extended or thrown up, by means of a rope attached to the lower round of the movable ladder, and passing over one of the upper and lower rounds of the stationary ladder. The arrangement and combination is very simple, and the parts operate well. He has taken measures to secure a patent.

Improved Grain Thrasher.

Mr Conrad Shull, of Columbia, S. C., has invented and taken measures to secure a patent for a useful improvement in machines for threshing grain: the improvement relates to a combination of revolving beaters and strippers at the mouth of the machine, where the full straw, with the grain on it, is fed in.

IMPROVEMENT IN OPERATING TABLE LEAVES.

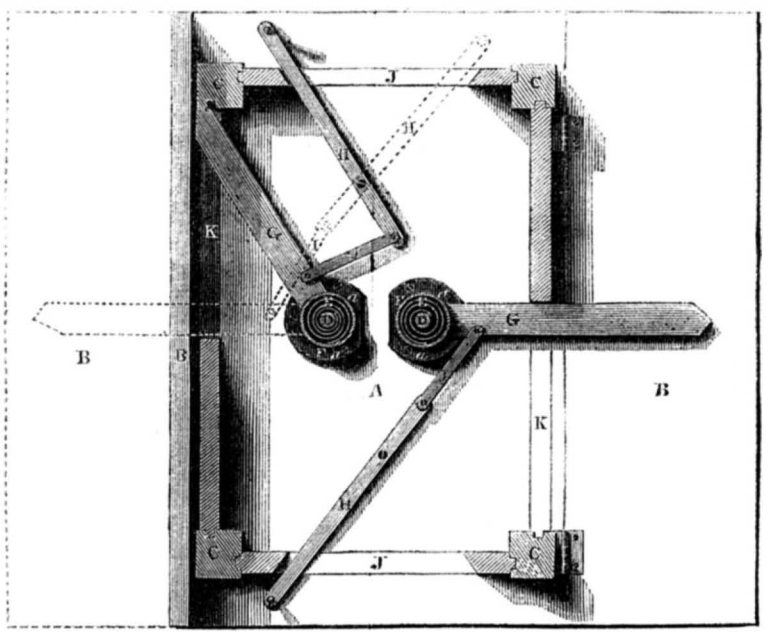
Fig. 1.



The accompanying engravings represent an improvement in operating the leaves of tables. Figure 1 is a perspective view of a table with the improvement attached. Fig. 2 is a view of the underside of the table top, the leaves of one of them being spread out in full. Figure 3 is a vertical transverse section of the same, taken through the middle. The same letters refer to like parts.

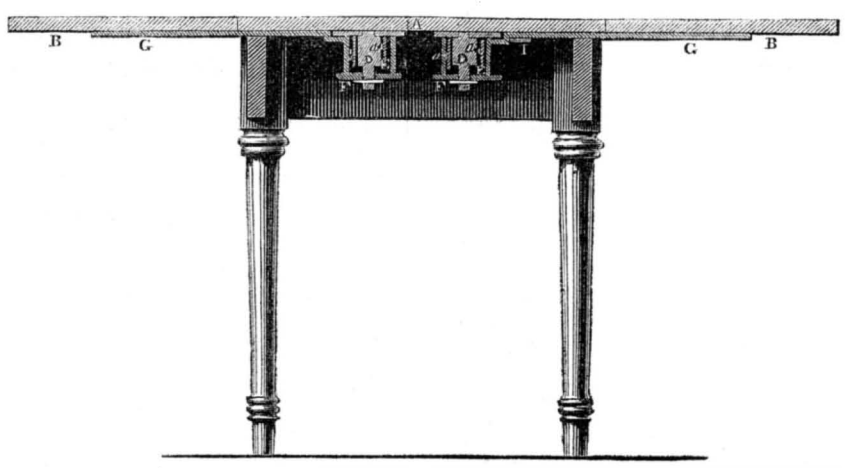
A is the table top; B B are the leaves; C C are the legs; D D are arbors of coiled springs, E E; *a a* are pins which secure the springs to the arbors; F F are the boxes or barrels of the arbors, to which the springs are secured, like all barrel springs; there are two of these springs on the under side of the table top, A,—one for each leaf, B. G G are supporting fly arms of metal; they are secured to the barrel springs; I I and H H are two jointed levers; the part I is secured to G, as shown in fig. 2. These levers work on vertical fulcra pins, *b b*, and the parts H H project through elongated slits, J J, in the ends of the table under the top. The supporting arms, G G, work in slits, K K, under the leaves. When the leaves, B B, are down, the coiled springs in their barrels are compressed, and the outer ends of the arms, G G, are drawn in, as shown

Figure 2.



at the one side in fig. 2; the arm, G, just touches the inside of the leaf, when it is down. By simply raising a leaf, B, until its whole surface is on the same plane with the table top, the arm, G, will fly out under the leaf, as shown on the other side of the same figure referred to, and thus it supports the leaf. Both leaves are operated in a similar manner. When the leaves are down, the tension of the barrel springs is exerted to throw the arms, G G, outwards, under the leaves, to support them in that position. By simply raising the leaves with the hand—one motion only—the supports, or arms, G G, fly out of themselves and keep them extended; by simply pushing the ends of the levers, H H, to the one side, in the slits, J J, of the table, the leaves drop down into their proper places. The improvement is

Figure 3.



a superior and easy mode of elevating and working the leaves of tables. These devices can be applied to a one or more leaved table. Heretofore Extension Tables seemed to be the only kind worthy of the inventor's attention; Leaved Tables having been overlooked.

More information may be obtained by letter addressed to the inventor, Mr. T. H. Taylor, of Fayetteville, who has taken measures to secure a patent.

Cutting Mouldings and Ornamental Work in Stone.

Mr. Hiram L. Houghton, of Springfield, Windsor Co., Vt., has invented and taken measures to secure a patent for very important improvements in cutting mouldings of any form on stone. He employs revolving discs of metal, the peripheries of which are the reverse, in form, of the mouldings to be cut. The cutting is performed by sand and water, which are applied to the stone and discs in proper quantities; the continual action of the discs upon the stone, rub the sharp sand into the stone, upon the same principle that marble is cut by the "plane saws." The discs revolve and grind into the stone until it fits into their peripheries. Suitable motions are given to the stone and to the shafts of the discs. according to the form of the mouldings to be cut.

Mr. Bond's Astronomical Clock.

Mr. N. S. Dodge, who was Secretary of the United States Commission at the World's Fair, is writing, in the National Intelligencer, a series of "Recollections of the Great Exhibition." In one of his numbers, he thus alludes to Mr. Bond's astronomical clock:

"There were accessories among the contributions from our country less known through the medium of the press, which were doing at the same time no mean service in increasing public sentiment in our favor. Some time in the early part of August, Col. Reid called at the office one morning, and inquired whether Prof. Bond had sent in his astronomical clock. He was answered in the affirmative. Requesting a sight of it, he was conducted to one of the alcoves of the United States, where, in what had been considered by Mr. Bond himself a good situation, the clock and its adjuncts had been fixed. 'This will never do,' was his remark. 'I regard this astronomical clock as the most wonderful achievement of science which the world has seen since the days of Newton. It must not stand here. It must go into the nave.' It was suggested to the Colonel that the nave was now quite as much filled as it ought to be, and that, if it were not, a very plain piece of furniture like the clock without the slightest pretence to beauty, would hardly correspond with the Fisher Boy, the Greek Slave, and other objects of the fine arts which were there. All would not answer, however; Col. Reid's wishes were law throughout the building, 'Sir David Brewster and himself,' he said, 'would take the Commission.' The change of place was made, and the ugly mahogany clock, which, it may be safely said, not one hundred persons of the millions who visited the Exhibition understood, often inquired about, but still more often jeered at by the loungers around the statuary, received, what many an English exhibitor would have given a thousand pounds to obtain, a Great Council Medal."

Knitting Machine.

A number of articles have appeared from time to time about knitting machines, and it has been a matter of no small wonder to many how they can make so many stitches per minute, one in Philadelphia making 60,000, and another said to make 100,000. This number is a pretty large quantity; but when it is considered that 800 needles are operated at once, the wonder ceases to be a wonder. The Griswoldville Knitting Co., Weathersfield, Conn., have these machines in operation.

Discovery of Silver in New Mexico.

A dispatch has been received by Government, from a military officer of the army stationed in New Mexico, stating that an extensive and rich silver mine has been discovered on the public lands, in the vicinity of Fort Fillmore, in that Territory. The main or chief vein is said to be over five inches in width at the surface, and is exposed from the summit of a mountain, fifteen hundred feet high, to its base, over a thousand yards in length. The eastern slope of the mountain, only, has been explored, but there is no doubt that the vein passes entirely through it. An analysis of the ore has been made by a Mexican silver worker, who pronounces it very rich. Fort Fillmore is about twenty miles north of El Paso. The United States is more rich in all natural resources—fruits, metals, and minerals—than all other countries of the world of the same extent.

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Scientific American

NEW-YORK, FEBRUARY 7, 1852.

The Propeller Case---International Patent Law.

Last week we published the decision of the Vice Chancellor of England, in the case of Lowe's Patent Propeller. The decision was the granting of injunctions to restrain a foreign (Dutch) company from running any of their screw steamships in British waters. We understand that a correspondence has taken place between certain parties, at home and in England, who are interested in the American screw steamers running between this country and Britain. It appears that injunctions are contemplated on both sides of the Atlantic. We are deeply interested in this subject, as the patent is claimed, in part, in both countries; this may lead to serious litigation, and prove exceedingly injurious to commercial interests. If litigation ensues, in all likelihood injunctions will be granted against the screw steamers of both countries—injunctions by the United States' Courts on one side, and the English Courts on the other; this will restrain all from running, and it may lead Lord Granville, who has just succeeded Lord Palmerston as Minister of Foreign Affairs, to bring in a Bill for the repeal of the whole English Patent Code; he will not allow any private question to interfere with the great commercial interests of that country: he has so expressed himself already.

We look upon the decision which has been rendered as a very unfortunate one, in every sense of the word, and if it is in accordance with the English law of patents, it certainly is not in conformity with the laws of nations. A person may invent some improved machine here—say a useful part for a propelling vessel; he may put it on a ship built here, and when it goes to Liverpool, the first thing the captain knows, may be a notice of an application made for an injunction to restrain the use of the propelling part, while his ship is in British waters. He may have gone into Liverpool with a propeller invented, constructed, and all paid for in America, but he cannot go out—cannot take a turn of his screw, until he pays tribute to an English patentee. If the spirit of the decision is carried out in America, an English screw steamer may meet with the same treatment when it comes to New York. The British Patent Law, however, exhibits more injustice than ours, because a person who introduces an improvement into England, if it is the invention of another man, may get a patent there. An invention may be taken from another country into England, and patented by a noninventor, and if he, the real inventor, goes there with his invention, to use it only for his own ship, he may be prevented from doing so while in British waters. None but *bona fide* inventors can get patents in America—so a case of injustice, like the one described, cannot be perpetrated here.

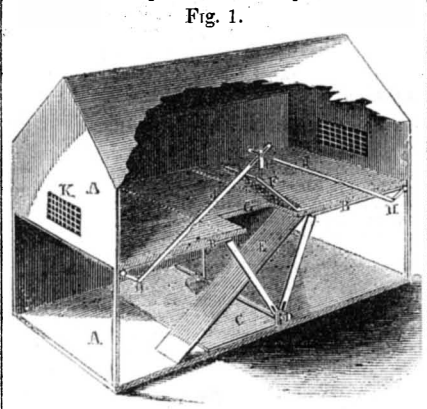
It is well known that petitions have been presented to Congress for protection, as it is termed, against shoemakers' lasts, which are manufactured in Canada, brought over, and sold in the United States. The lasts were never patented, but the machine that makes them was, the patent of which expired long ago, but was extended by special Act of Congress to the ingenious inventor, Thomas Blanchard, Esq., of Boston. The owners of patent rights in New York cannot compete with the last makers in Canada, and pay the patent tax—therefore, as they cannot touch the last machines in Canada, they ask for protection against the manufacturers' lasts. The machine, we believe, had been patented in England and the Colonies, but the patent has expired there. Here, then, we have a number of international patent questions, which are not a little perplexing. We say to those who are interested in those patents which affect national interests—"be very careful what you are about—be generous and forbearing, or else measures may be taken by the strong influence of the mercantile classes to abolish all your special grants." The patent laws are statutes of national policy, founded partly but not absolutely on the principles of equity. Patent Laws have done great good in exciting inventors to the discovery of new improvements in the arts and sciences. We wish to guard and support them with a firm and generous public influence, but, at the same time, we believe that such a decision as that of the Vice Chancellor of England, in the case of Lowe's propeller, goes far beyond what we should like to see claimed by a patentee in any country. It is our opinion, however, that there will not be any future trouble to our screw steamships, by Lowe's patent, for it has nearly expired. On last Monday and Tuesday, the 2nd and 3rd inst., a hearing was to have been given at the British Privy Council, for the prolongation of the said patent. We do not know exactly what the result may be; we only know that it was to be opposed by a host of interested parties, as screw propellers have, within the past three years, come into great favor, and especially with the British Government, as it has been decided to employ auxiliary screw power in nearly all their line-of-battle ships. Lowe's patent is very wide in scope, and although it has a good principle at bottom, yet it prevents the use of all improved propellers, some of which are to it what Watt's engine is to Hero's—it is like Fitch's oars to the Galloway wheel. It is our opinion that the patent will not be extended. If Mr. Lowe has not been rewarded for the benefits he has conferred upon the British Government and people by his propeller, we hope he will be allowed some just and honorable compensation by Government. This would be the best thing our Government could do in the case of the Blanchard Patent; we cannot see how he can receive the benefits of his extended patent in the manner requested by the petitions we have alluded to, without bringing about a great many international troubles.

Mechanics' Strikes.

By the late news from Europe, we learn that no less than 30,000 English operative engineers and machinists, employed in the great engineering establishments in England, have *struck*—that is, they have ceased and refused to work, unless their employers submit to certain resolutions which have been adopted by those mechanics, in society assembled. It seems that they have an accumulated fund of more than £30,000, and with this, by their usual short-sighted policy, they imagine (or why would they strike?) themselves able to drive their employers into their terms. When we look upon the conflicts of capital and labor in Great Britain—a touch of which we had in this city last year—we are ready to say, "is this all our civilization has brought us to?" Dreamers may talk about political economy theories as much as they please, and imagine that their lucubrations are ruling the world, while, in fact, not one in twenty thousand pays the least attention to them. It seems to us that neither experience, nor anything else, can teach the great mass of mankind wisdom. We are opposed to all strikes for wages, and all antagonistic combinations of employers and employees. Every strike yet made has ended disastrously to the workmen, and has proven a dead loss to the country. Every day a man is idle, causes the loss of a day's product to the community. Strikes among workmen are to the body politic what cancers are to the physical system. It is indeed hard for men to toil for low wages; yet we cannot but condemn their conduct in striking: the interests of employers and employed are one; and instead of fighting and wrangling, it would be well for them to cultivate better feelings. In Europe, where, for centuries, there have been continual conflicts between capital and labor—employers and employed—there is too much eye service—a thing we do detest. The workmen try to do as little as they can, and the employers to pay as little as they can. The one class is just as bad as the other; yea, the workmen have oftentimes exhibited the most outrageous tyranny upon those who were placed under them. The journeymen used to abuse their apprentices; and the cruelties of the cotton spinners to their "piecers," the calico printers to their "tearers," are well known. These two trades, in Great Britain, are ruined to the workmen: the journeymen now make but a few shillings per week; once they made about ten or twelve dollars. They long kept up their prices by means of vitriol and the bullet of the assassin, and at the same time they paid their little "piecers" and "tearers" a bare pittance—scarcely as much as would buy them shoes. Justice and judgment came at last; and these two trades are now among the most miserable in England,—may God keep such conflicts out of the United States of America.

Improved Rat Trap.

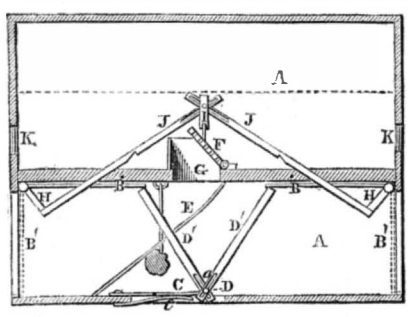
Fig. 1.



The accompanying engravings represent an improved Rat Trap, invented by Mr. J. H. Chester, of Cincinnati, Ohio. Figure 1 is a perspective view, and figure 2 is a vertical section of the trap. The same letters refer to like parts.

A is the trap; B B are the doors; C is the tilting board: *c* is a spring for operating upon the same, after it has been depressed. D is a rod upon which the tilting board is hung; this rod operates upon the catch levers, D′ D′, when the tilting board is depressed. *a* is a slot for the rod, D, to move in. The catch levers are for holding up the doors, B B, in the position shown in the engraving. The dotted lines, B′ B′, also show the doors, but closed. As soon as the rat enters the door, B, he commences nibbling at the savory morsel which is hung over the tilting board, C, and almost before he is aware of the fact, he finds himself entrapped; he having, by his own weight, depressed the tilting board, thereby disengaging the catch levers from the doors, which immediately fall. As soon as he hears the noise of the doors falling, he becomes alarmed, and endeavors to find some way of escape, when suddenly he is attracted by a light issuing from the trap-door, F; he immediately ascends the inclined-way, E, and by his own muscular power raises the perforated yielding door, F, a considerable height, and bounds through the hole, G, into the second apartment or prison—not for a moment thinking of the snare he has re-set for his brother-rat.

Fig. 2.



It will be seen by a reference to the engraving, fig. 2, that as soon as the rat commences raising the door, F, the cranks, H H, are operated in such a way by the strips, J J, that they are made to raise the doors, B B, and through them, in connection with the catch levers, D′ D′, the cranks are secured on the rods upon which the doors, B B, turn. I represents a connecting rod or link; this rod is connected at one end to the door, F, and at the other end is attached, by a pin (which moves in slots in the strips, J J, which are connected), to the cranks, H H, and to the strips, J J; by having the slots in the strips, J J, the door, F, is allowed to fall and rise in a straight line. K K represent windows through which rays of light are admitted to the trap.

The Aztec Children.

These children, which we have noticed before, still continue to attract great crowds at the Society Library, this city, and no wonder,—they are great curiosities; as all who have seen them can testify. They are not only subjects of interest to the merely curious, but to those whose professions lead them to look upon them in a scientific light. In respect to them, never was the old proverb of "doctors differ" more completely substantiated: Drs. Warren and Kneeland, of Boston, have come to the conclusion that they are South American Indian dwarfs, with the limited intellect—idiotic—peculiar to the great majority of the dwarfs of all nations. Dr. Buchanan, of Cincinnati, the Editor of the "Journal of Man," believes they are the offspring of the priestly race belonging to the Toltecs, and degenerated by near relative intermarriages for generations. Dr. Powell, late Professor in the Memphis Medical Institute, believes them to be an exception to everything hitherto known in the history of our race.

Whenever any strange fact is brought to light, a terrific rush is sure to be made by a multitude of men, all determined to be pre-eminent in predicating the causes and conditions of its product. We have had a host of writers on South American Antiquities, and yet all their works are but inconclusive speculations. There is a host of writers on the unity and multiple origin of the human race,—the one flatly contradicting the other, and none of them conclusive, and here we have the same incongruity respecting the Aztec Children. The general opinion of all common-sense people, who have visited them here, is that they are dwarfish idiotic products of South American Indian pareatage. They are the greatest natural curiosities of the human species that we have ever seen, with but a single exception.

To Mend Iron Pots and Pans.

Mr. Editor—In No. 9, this Volume of the Scientific American, I find a statement made, as communicated all the way from China to our Patent Office, about a mode of mending broken iron pots and pans by the Chinese. Your remarks about the same are just, and I shall describe a mode much more cheap and simple, and which will be of great benefit, I have no doubt, to many of your readers.

Take two parts of sulphur and one part, by weight, of fine black lead, and put the sulphur in an old iron pan, holding it over the fire until the sulphur begins to melt, when the black lead is added, stirred well until all is mixed and melted, and then in its molten state the compound is poured out on an iron plate or a smooth stone. When it has cooled down it is very hard, and is then broken in small pieces. A quantity of this compound is placed upon the crack of the iron pot to be mended, and by a hot iron it can be soldered in the same way a tinsmith solders his sheets. If there is a small hole in the pot, it is a good plan to drive a copper rivet in it, and then solder it over with this cement. I know a person who mended an iron pot by the above plan upwards of twenty years ago, and he has used it ever since. N. R.

Pottsville, Pa.

California Quartz in England.

In November last, forty-two tons California gold-bearing quartz were re-shipped at this city for London. Its arrival created considerable attention in that city. It filled about a hundred barrels, which led to the rumor that the quantity was about one hundred tons. It was from Grass Valley, Nevada county, the specimens being of various degrees of richness, averaging £100, or near $500 to the ton. The picked specimens were equal to $7,000 per ton. Experiments were to be made in stamping, which, it was expected, would throw some light on the nature of the machinery expedient to be used in California or London. Further consignments were expected, if the result should prove satisfactory. Large as the freight expenses are, the suggestion is thrown out by the London News that the expense of maintaining machinery in the new State may be greater than freighting the quartz to London before refining and stamping.

The Geometric Transfer.

The master Tailors and Cutters of Lockport, N. Y., have publicly given expression to their opinions respecting the value of the Tailors' Measure invented by Mr. James McGinnis, and illustrated in our columns two weeks ago. They say it is an improvement much needed in the Trade, and for speed and accuracy it excels all instruments they have ever seen.

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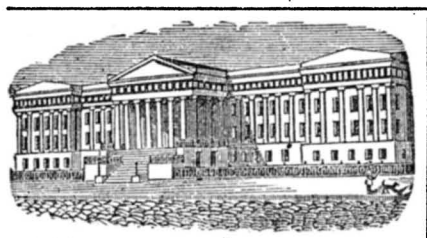

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JANUARY, 27th, 1852.

PIANOFORTE ACTION.—By Geo. Brown (assignor to Geo. Brown & John Munro), of Boston, Mass.: I claim in the upright piccolo pianoforte action, the arrangement of the back catch lever, in front of the back catch, and so that the rear side of the bearer shall operate in connection with the front side of the back catch.

SAND PAPER HOLDER—By Azel H. Copeland, of West Bridgewater, Mass.: I claim the implement called a sand paper holder, constructed substantially as described, that is, of two similar pieces of wood, with handles at the ends, the inner sides flat, and the other sides rounded, joined together lengthwise, by a hinge of cloth, or leather, so that the flat sides can be brought together, the outer edges of the flat sides having small wire pins inserted in them, by which the sand-paper is held, and the two pieces being held together, when closed, by dowels, in one of the flat sides entering corresponding holes in the other flat side.

MILL SPINDLES—By E. T. Butler, of Buffalo, N. Y.: I claim, first, uniting the upper and lower parts of the spindle by means of the driving chuck, or key, made substantially in the manner and for the purpose set forth.

Secondly, I do not claim the vibrating centre, separately; but I claim it in combination with the driving chuck or key, and the method described, of uniting the parts of the spindle.

RING SPINNER—By G. H. Dodge, of Attleborough, Mass.: I claim the combination of the standard, or projection, with the ring and traveller, substantially in the manner and for the purpose of removing or loosening waste from the latter, as specified.

OPERATING THE RELIEF VALVE IN PARTIALLY CONDENSING ENGINES—By Wm. Few, of St Louis, Mo., and Francis Armstrong, of New Orleans, La.: We claim the arrangement and combination of the partial escape or relief valve, plate, reciprocating lifting box, connecting rod, crank lever, and rock shaft, whereby the said relief valve is actuated simultaneously with the opening of either of the exhaust valves, and allowed to close again, as set forth.

COOKING RANGES—By J. P. Hayes, of Boston, Mass.: I claim the combination of the pipes, arranged with fire spaces between them, with the hot-air flues and diving flues of the brick-work on the back and side of of the oven, by which hot air is circulated through the oven and back again to the chamber about the fire-pot, and so on continuously, this hot-air being used either for baking or for heating the apartments of the house.

Second, I claim the use of swing doors, arranged one on each side of the front of the fire-pot, serving for radiating surfaces, in connection with said front of the fire-pot for roasting purposes, and to admit the cold air, when opened, as described.

WATER METRES—By Sam. Huse, of Boston, Mass.: I claim combining with a cylindrical case, such as described, and provided with induction and eduction passages, and with a segmental stop and leather cap plate for packing, substantially as described, a series of hinged segmental pistons, hinged to arms projecting from a central shaft or hub, and hinged at about one-third of the distance from their inner ends, so that when thrown open, their outer ends shall not bind against the inner periphery of the cylinder, and when closed, to pass the segmental stop, they shall be sustained by a rest, projecting from the central shaft, or its equivalent, having a space between them and the shaft and arms, for the free flow of water or other fluid, under the said pistons, to admit of their closing freely—the whole being made and combined together, substantially in the manner and for the purpose specified.

NAIL PLATE FEEDER—By Caleb Isbister, of Alleghany City, Pa.: I claim the giving to the nail plate an interrupted, rotary motion in the same direction, instead of the reciprocating, partially rotating motion, in opposite directions usually given to said plate; and this I claim, irrespective of the mechanical devices by which said motion is communicated.

Secondly, I claim the combination of the sectional cog-wheel, always moving in the same direction with the cylindrical cog wheel having irregular teeth working between guides having a mouth-piece, and with the springs and spring plate, or their equivalents, by means of which, both an interrupted rotary and a raising and a falling motion is communicated to the nail plate.

Thirdly, I claim giving a continuous forward and an interrupted forward, and backward motion to the nail plate, by means of the revolving shaft, screwed tube, cam and guide pin and nut, combined with each other, substantially as described.

IRON RAILINGS—By Benj. Kraft, of Reading, Pa.: I claim the method of constructing a self-adjusting and fastening fence, by forming the posts in two pieces, substantially such as described, making two sides of one part of the post with mortises at the top and near the bottom, for the reception of the rails, and the other piece, when in place, retaining them in position.

I claim the tongues connecting the hollow cap, provided with a tongue and groove, with the uprights or panels, said tongues passing between the rails and with the cap, serving as a hook to sustain the uprights or panels.

RAILROAD SWITCHES—By A. S. Miller, of Republic, O.: I claim placing the tumbler under the rails, in such a manner as to ease their movement, and when at rest, operating as a brace or key to retain the rails in place.

FIRE ARMS—By C. V. Nickerson, of Baltimore, Md.: I make no claim to being the original inventor of a fire-arm, or gun, loaded at the breech, such as that patented in France, to Mr. Tourette, of Paris, on the 24th Nov., 1834, described in "Brevets d'Inventions," Vol. 55, and in description of other guns which are loaded at the breech, patented and unpatented; but what I claim is dividing the stock at the junction of the barrel and breech, and mounting the barrel and that portion of the stock to which it is attached with a sheath or case, upon a longitudinal bar or tongue, projecting from the butt of the stock, whereby the stock and barrel are allowed to have a movement from the breech, for inserting the cartridge into the chamber thereof, and returned and locked by a catch to confine them together.

SHINGLE MACHINES—By Luther B. Parker, of Pine Township, Pa.: I claim the application of the vibrating and gauging the shingles. The shingle blocks are laid on the bench and are pressed against the vibrating rod, one end resting against the centre panel of the knife sash, then as the sash moves up and down, the shingles are cut off the block and finished at one stroke of the machine, while the block can be turned at leisure, to suit the grain of the wood.

SHIPS' DAVITS—By Chas. Perley, of New York City: I claim the application of the socket, on its hinge, in combination with the socket and davit, for the purpose as described.

NECK YOKES—By J. T. Plato, of Jasper, N. Y.: I claim the combination of the washers, the swivels, bolt, and nut, with the ordinary neck yoke, arranged in the manner and for the purpose seth forth.

RAILROAD SWITCHES—Ira Reynolds, of Republic, O.: I claim, first, the attaching of the links or arms to the stay bar or switch rails, and superstructure, for the purpose of holding the switch rails against the undue action of the levers, and securing them in a perfect and uniform motion, when acted upon by the levers; also to act as a stay, or lock, which shall effectually hold and secure the switch rails, in every position, substantially as set forth.

Second, I claim a combination of the pivotted levers furnished with peculiar formed ways, with the operative shoe so constructed and arranged that the switch rails are moved upward and laterally, in manner substantially as described.

WINDLASS—By A. C. Semple, of Cincinnati, O.: I claim winding the rope upon a screw with a concave score between the threads that fits the rope and supports it in its proper form, thereby lessening the wear of the rope, and its liability to be broken, in the operation of pressing, when the said screw is made to work through a fixed nut, so as to always draw the rope in the same position, substantially as described.

SHEARS—By J. C. Symmes, of West Troy, N. Y.: I claim making the pivot and the hole in one or both limbs in which it fits, of such form as exemplified, as to cause the edges of the blade to be drawn together, sideways, by the power applied in cutting, as herein fully set forth.

FILE CUTTING MACHINES—By J. H. Thompson, of Paterson, N. J.: I claim, first, the travelling and revolving elongated elliptical cam, in combination with the connecting rod or its equivalent, communicating a varying amount of motion to the rock shaft, which motion is conveyed through suitable mechanism, substantially such as is described, to the screw by means of which a varying rate of travel is communicated to the chisel.

Second, the inclined plane, or its equivalent, in combination with the jointed chisel stock, or its equivalent, pressed against said plane by the spring, or its equivalent, substantially as described.

Third, the springs or their equivalents, to press the axis of the stock into the scores in the sliding bar.

Fourth, the springs, or slides and spring, whether used separately or combined, to press the cross against the pillars, so that the file may remain upon the bed, in that position in which it is placed, by one stroke of the chisel, until it is struck again, thereby dispensing with the roller heretofore used, to press the file against the bed.

MAKING AND SIZING PAPER.—By G. W. Turner, of London, Great Britain: I claim, first, the application of the endless wire web, in combination with and passing round the cylinder, and taking the pulp up from the vat, and carrying it forward and submitting it to the action of the dandy roller and pneumatic trough, taking the place of the fixed wire web and endless felt, in the cylinder machines now in use, and the wire web, upon which the pulp flows, in the Fourdrinier's machine. I am aware that a somewhat similar combination is found in Millburn's machine, reported in "Repertory of Patent Inventions," 5th series, Vol. 9, page 325, dispensing with the cylinder; but that I do not claim.

Second, I claim the method of passing the paper through a trough of size, between two endless felts, or other fabrics, as described, thereby obtaining a perfect and uniform saturation of the paper, and protecting the paper from all injury during the process of sizing and pressing.

BURGLAR ALARMS—By L. J. Worden & E. H. Space, of Clinton, N. Y.: We do not claim the clock movement as that is well known and an old invention; neither do we claim the lever for the purpose of operating upon the pallet; but we claim the securing of the lever after it has been moved by the button, so as to allow the pallets to be acted upon by the escape wheel, said lever being secured by the end of the lever fitting in a groove or recess in the end of the lever, the end being forced into the groove or recess by the spring, substantially as described.

Printing Letters.

MESSRS. EDITORS—I address you a few lines for the purpose of giving you a sample of printing done on a hand press or Mechanical Typographer, making one letter at a time; I make about sixty letters per minute on this machine; it occupies less space than one cubic foot, and is perfectly simple, and not liable to get out of order. This machine does not make the lines exactly straight, but this imperfection will have an easy remedy when properly manufactured; it is very ornamental, and I think it may be manufactured so cheap as to come within the reach of every family. The whole operation for printing a sheet like this is performed by taking hold of and operating a single small lever. I shall take the proper steps to secure a patent forthwith. I made an effort four years ago to get up a machine of this kind, but without success. My present success in getting hold of what I consider the true principle for such a machine, I ascribe to my attention being called to the subject by an article in the Scientific American of October 18th, 1851. JOHN JONES.

Clyde, Wayne Co., N. Y.

[The above is strong testimony to the benefits conferred upon mankind by a paper devoted to science and the mechanic arts. The above letter, it will be understood, came to us, printed as it now appears. We hope friend Jones will be amply rewarded for his ingenuity.

[For the Scientific American.]

Mobile and Ohio Railroad.

You appear not to be aware of the fact that there is a joint charter from the States of Alabama, Mississippi, Tennessee, and Kentucky, for a road from Mobile to the mouth of the Ohio; that the whole route has been surveyed,—that it is located through the States of Alabama and Mississippi,—that a large portion is under contract, and that the cars are about being started on 33 miles of it. This road is intended to run from Mobile to the mouth of the Ohio, and there to unite with the Illinois Central Railroad, extending thence to Chicago, thus connecting the Gulf with the lakes of the North. I doubt if there be another railroad in the world connecting two as distant points, (the whole of it through a populous country, and nearly in a direct line) without tunnel, deep excavation, or high embankment, and that will take as small an amount of labor to grade. From Mobile to the mouth of the Ohio there is no chain of mountains to cross, and but a few low hills or ridges. The United States Government has granted to the company 1,200,000 acres of land in Alabama and Mississippi, which is supposed to be sufficient to pay 40 per cent. towards building the road. This road is different from most others,—it runs almost due North and South, through a wealthy agricultural country, embracing eleven degrees of latitude—from the sunny South to the frozen North—with all their variety of climate and various productions. It is expected to be completed in three years. J. B. CONGER.

Jackson, Tenn., 1852.

[Friend C., it was not intentionally that we overlooked the Mobile and Ohio Railroad, but for want of reliable information on the subject.

Indiana Railroads.

The Indianapolis and Bellefontaine road is a link of 83 miles (between the capital of the State of Indiana and the western line of Ohio) in the central line of railways now being rapidily constructed from Philadelphia, through the West, to St. Louis, from which place it is being extended west on the line of the emigrant travel, to Independence, at the mouth of the Kansas river. At the Ohio line (Union) the above link will connect with the through lines from Pittsburg, Cleveland, Sandusky, Columbus, Dayton, and Cincinnati, and at Indianapolis, with all the railroads centering there and radiating to every part of the State, including the through line to Terre Haute and St. Louis. It is confidently believed, by the companies in charge of that part of this great central route from Bellefontaine (Ohio) to Terre Haute, that it will be opened to the public this year—114 miles being already in use; giving a continuous line of first-class railway from the Lake and Pittsburg to the Wabash river at Terre Haute, and to Madison on the Ohio, passing through the seat of government of Indiana. The president of this road, Mr. Smith, has within a few days purchased twenty-five hundred tons of heavy rail to complete the residue of the road, to be delivered in time to lay early in the season. This road, owing to the character of the country through which it passes, is one of the least costly in the United States, being a heavy T rail, ballasted road, costing, up to the rolling machinery, less than $10,000 to the mile. The semi-annual interest of the few bonds the company have issued to purchase their iron, has been punctually paid.

Tennessee and Railroads.

Mr. Houston, the Chairman of the Committee on Internal Improvements, introduced in the House a General Bill, which was read and passed. This bill provides, under provisions well guarded and with ample security to the State by mortgage, that the State shall advance her bonds to the amount of $8,000 per mile, to furnish the iron and equipments. The roads especially provided for in this bill are the following, to wit:—East Tennessee and Virginia, from the Virginia to connect with the East Tennessee and Georgia, to the Chattanooga, Harrison, Georgetown and Charleston Railroad; to the Nashville and Northwestern Railroad; to the Louisville and Nashville Railroad; to the Nashville and Henderson Railroad; to the Southwestern Railroad; to the Memphis and Charleston Railroad; Mobile and Ohio Railroad; to the Memphis and Nashville Railroad; to the Nashville and Cincinnati Railroad; to the East Tennessee and Georgia Railroad; to the Memphis, Clarksville and Louisville Railroad.

The passage of such a bill by the Tennessee Legislature will, in a few years, make her the railroad State of the Union.

Cure for the Rheumatism.

Captain Cook, the celebrated circumnavigator, describes a cure for this complaint, which is practiced among the Otaheitans. It ought to be generally known, that in desperate cases the experiment may be tried.

While lying in the harbor at the island of Otaheite, he was troubled with a severe rheumatic pain, which extended from the hip to the ankle. As soon as the circumstance was known on shore, a numerous body of women flocked on board and volunteered their services in curing the disorder. He accepted their friendly offer, and submitted with a good grace to their directions. He was requested to lay down, when all who could get near him began to squeeze him with both hands all over the body, but more particularly in the parts complained of, till they made his bones crack, and his flesh became almost a mummy. He suffered this severe discipline for about a quarter of an hour, when he was happy to get away from them. But the operation gave him immediate relief, and encouraged him to have it repeated before he went to bed, and it was effectual so that he found himself easy the whole night after. His female physicians obligingly repeated their prescription the next morning, and again in the evening, when the cure was completely effected.

Life in the Polar Regions.

Mr. R. C. WELD, in a letter to the *London Times*, gives the following to show that life may be sustained for a long time in the Arctic regions, and that Sir John Franklin and his companions may still survive:

In the year 1743, four Russian sailors, forming part of a crew of 14 men, went in a small vessel to fish for whales on the east coast of Spitzbergen. By some unfortunate accident, the ship sailed away, leaving the above four men on that dreary island. Their entire stock, at the time of this disaster, consisted of a small bag of meal, a musket, a powder-horn, twelve charges of ammunition, an axe, a knife, a small kettle, a stove, a piece of touchwood, a tobacco-box, and four pipes. The men were not overwhelmed by their calamity, but instantly set to work to provide for their future wants. The wreck of a ship, which they found on the shore, supplied them with fuel, and the twelve charges of powder and ball procured them as many reindeer, which were numerous on the island. With nails, extracted from a piece of ship-timber, they made three lances, wherewith they killed a bear, and with the strong tendons of the bear they strung and strengthened a piece of crooked dritt-wood, which they converted into a bow. With this, and the arrows which they easily made, they killed, during their stay of six years on the island, 250 reindeer, 10 bears, and a vast quantity of foxes; and when they were at length relieved by a vessel which touched unexpectedly at the island, they were able to pay for their passage home with 2,000 lbs. of deer fat, and many hides of the animals they had slain.

One of their number, a very indolent man, who, from the beginning, had eschewed almost every kind of exertion, died of scurvy, while the other three found health in their daily active employments.

Phenomenon.

The Quebec Mercury of the 20th ult. says: At about mid-day, yesterday, a singular phenomenon presented itself in the sky. The sun was surrounded with a large halo, on the east and west borders of which, and directly opposite each other, were to be seen two smaller suns with each a long train of light extending outward through the sky. At the same time a brightly colored rainbow intersected that portion of the circle around the sun which extended through the zenith.

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TO CORRESPONDENTS.

A. D., of Me.—The selling of a machine to the gentleman you speak of, cannot compromit your rights as a patentee. The term "public use" means the using and selling of a machine, without proper efforts to apply for and secure a patent for two years before applying for it.

W. D. A., of Ohio—We replied to your former letters by mail. Wm. Serrell, of this city, is the President of the Steam Carriage Co.

J. H. E. of Iowa—We do not know of any one to whom we could refer you: you could correspond with inventors whose names appear in our columns.

W. H. G., of Ky.—We sent you a set of Vol. 5 by mail, on the 10th Oct. Bound volumes of the Scientific American are not mailable. We sent you another set of Vol. 5 last week.

M. M. M., of Vt.—There is nothing patentable in your arrangement. If we understand it, the drill is elevated by the revolving radial arms, and falls by its gravity upon the substance. It is the same essentially as a common tilt hammer, and could not be made effectual without the aid of a powerful spring to force the drill down. This object is met in Foster & Bailey's Patent. Devices of this kind are well known. Papers sent.

N. W. W., of N. Y.—Our opinion, respecting the comparative economy of the Electro Magnetic and Steam Engine, is unchanged. The great field for improvement and discovery is electro chemistry. Prof. Page, we have been informed, has lately made some valuable discoveries in this field.

L. A. B., of N. Y.—Mr. Bogardus, of our city, the great Iron House Architect, has a design which, in our opinion, will enable the daughter to surpass the mother. Your plan is exceedingly creditable.

S. J. W., of Mich.—Wheels have been made with wood inserted in the tread, but nothing will stand but to have them all of iron, and of equal hardness. Your second invention may be valuable, but it could not, we believe, be patented. Your third appears to be good; we have seen small brushes made out of fine wire, but never any fine wire brooms.

C. R., of La.—Gutta percha bands have been condemned as being far inferior to leather; they heat and get soft. The plan you propose would be an improvement, we believe, in many cases. It is cheaper to turn the pulley smooth and use a flat leather belt, than to employ the grooved pulley with the belts you speak of.

J. C. M., of Ky.—Mr. C. B. Hutchinson, of Waterloo, N. Y., has a patented tape measurer, which we think embraces all the principles of your alleged invention. Your friend Tripp has never written to us that we are aware of.

P. W. J. A., of Md.—We believe no such engines as you inquire relative to, are made on so small a scale any where in New York.

Mr. O'Brien's engravings will appear in No. 23. We could not reach them earlier.

Money received on account of Patent Office business for the week ending January 21st.

H. & O., of N. J., $60; P. J. C., of Ala., $30; A. L. F., of Ct., $30; C. W., of N. Y., $30; R. A. V., of N. Y., $25; F. C. G., of N. Y., $5; E. M. & Co., of Pa., $44; S. R., of N. H., $30; T. B. W., of Pa., $30; J. N., of Ct., $30; L. D., of Ct., $30; W. H., of Wis., $45; J. N. A., of Ct., $20; P. M. & Co., of Pa., $25; A. B., of O., $5; W. B. C., of N. Y., $20; J. E. M., of Ct., $12.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Jan. 31:—

G. S., of N. Y.; R. T., of Pa.; C. W., of N. Y.; J. E. M., of Ct.; W. B. C., of N. Y.; J. N. A., of Ct.; E. M. & Co., of Pa. (2); T. H. T., of of N. Y.; H & O., of N. J. (2): W. H., of Wis.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

Subscribers ordering books or pamphlets are particularly requested to remit sufficient to pay postage.

New Arrangement.

Several of our readers have expressed a wish to subscribe for some literary journal in connection with the Scientific American, not feeling able to take both. We have entered into an arrangement with the publishers of the "American Model Courier," of Philadelphia, and the "American Union," of Boston, which will enable us to furnish either of the two, with the Scientific American, for $3 per annum. They are literary journals of the first order, and are widely circulated in all sections of the country.

Persons writing us without signing their names to the communication, are considered as not acting in good faith, or as mistaking the rules which govern all newspaper establishments, and are therefore not attended to. Never send.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all but 4 numbers, price, in sheets, $1, —complete sets, bound, $2,75.

Of Volume 6, all; price in sheets, $2; bound, $2,75

Of Vol. 7, all back numbers at subscription price.

ADVERTISEMENTS.

Terms of Advertising.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any price.

American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago; I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.

Nashville, Tenn., 1851.

This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20.

MUNN & CO.

LATHE WANTED.—Wanted a new or good second-hand Engine Lathe, about 12 to 18 feet long; and that will swing 30 to 50 inches. Address, post-paid, box 187, Harrisburg, Pa. 21 2*

MACHINIST'S TOOLS.—Marshall, Bement & Colby, (successors to E. D. Marshall & Co.) Callowhill street, west of Schuylkill Third, Philadelphia, Pa., are preparing to make to order, and keep on hand Machinist's Tools, such as Planing and Compound Planing Machines, on a new and improved plan, Slide and Hand Lathes, Upright and Horizontal Drills, Upright Boring Machines, Improved Screw and Belt Cutting Machines, with P. W. Gates' Dies and Taps, or with the common Dies, Gear Cutting Engines, Slotting and Paring Machines. Also keep on hand Washburn & Whiton's Patent Scroll Chucks, of all sizes. All orders by letter or otherwise will receive their prompt attention. E. D. MARSHALL, WM. B. BEMENT, G. A. COLBY. 21 10 *

CHAS. W. COPELAND, Consulting and Mechanical Engineer, Surveyor of Steam Machinery, &c., No. 68 Broadway, N. Y., superintends the construction of steam vessels and steam engines, and machinery of every description; specifications and contracts prepared; also general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steam engines, boilers, &c. 21 10*

MALLEABLE IRON FOUNDRY, EASTON, Mass—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment. We have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Eastern Express, Boston, Mass. All letters will be promptly attended to.

21 10* DANIEL BELCHER.

TO ARCHITECTS, SCULPTORS, &c.—The Commissioners of the Greene and Pulaski Monument Lottery Fund, offer Three Hundred Dollars for an approved design for a Monument, to be erected to the memory of Count Pulaski, in Chippewa Square, Savannah. Architects, Sculptors, Designers, &c., are invited to offer plans and specifications for selectmen, and to evince their own taste and judgment as to design, with no other limit than the cost, which must not exceed $17,000. Designs will be received until the 1st day of April, 1852, by the subscriber, from whom any further information may be had.

WM. P. BOWEN, Secretary.
Savannah, Geo., Jan. 13, 1852. 21 6*

TO BLACKSMITHS—Barry's Improved Elliptic Spring Joint. Scores of names are being received, testifying to the cheapness, simplicity, and utility of this joint. Enclose $1, and receive an engraving, with permit to make, &c. You can more than save the money in making two setts of springs. Address, post-paid, S. S. BARRY, Brownhelm, Lorain County, Ohio. 21 1*

TO INVENTORS.—I beg respectively to suggest that the establishment of a National Inventor's Institute, with regularly organized branches, would be the best means to assist your efforts to superintend your interests, and protect your patent rights. JAMES NIXON, Potosi, Wisconsin. 21 5*

STEAM BOILER, of 2 1-2 horse power, (Bently's Patent) with pipes and fixtures in complete order. Price, $125. Enquire 78 Suffolk st, of I. L. & D. I. RIKER. 21 2*

A **STEAM ENGINE** of 30 horse-power, for sale, with two boilers, furnace front, grate bars, copper pipe, heater, double-acting pump for cold and hot water; also Judson's patent Governor Valve, and Noyes & Allan's Metallic Packing—all complete and ready to be put in operation immediately. For particulars address HENRY BACMEISTER, Steam Engine Builder, Schenectady, N. Y. 19 4*

ONE DOUBLE ENGINE of six-horse power, second-hand, used about one year; the size of cylinders, 4 inch bore and 12 inch stroke, and furnished with pump, regulator, and all attachments; the boiler is horizontal tubular, 7 feet long, 3 1-2 inches in diameter, and requires no brick to set it, the fire being made inside the boiler. The above engine will be sold for $400 cash, delivered in New York.

MUNN & CO.

ENGINE FOR SALE—An Upright Engine 6 1-2 horse-power, 18 inch stroke, 7 inch diameter; pumps, governor, all complete; 8 foot boiler, 3 feet diameter, two flues; cast-iron head, grate bars, &c. —built in 1848, has run 8 month in all, is in good order, and can be warranted shipped in good order for $475. Address, remitting draft, to MUNN & CO.

$10 REWARD—I will pay the above amount to any person who will send by mail or otherwise, to my address, a perfect copy of the Jury Trial, commenced in May, 1846, by Hitchcock (an assignee of the Woodworth Patent) against Brown and others, in Vermont, within one month from this date.

19 3* SAML. B. SCHENCK, 64 Cortland st. N.Y

THE WEEKLY SUN.—This large, interesting and excellent neutral Weekly newspaper,—the first dollar-a-year weekly paper ever printed—has now entered upon its sixteenth year of publication. Its contents embrace the very latest news from all parts of the United States and the world, received by Telegraph, from Correspondents and by Steamers; also Shipping Intelligence, Monetary Affairs, Prices, Current, Agriculture, Reports of the various American Cattle markets, summaries of general news, interesting selections of Light Literature, Mechanics. Single subscriptions ONE DOLLAR A-YEAR.

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19tf BEACH BROTHERS, New York City.

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting effectually the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior in every respect (the highest grade warranted to vary less than two minutes in a year) to any made in the United States. Ample opportunity will be afforded to test their qualities. Glass (illuminated) dials of the most beautiful description furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 19tf.

EUREKA! NEW YORK AHEAD OF the World!—Patent Premium (Silver Medal, 1851, Amer. Insti.) Corn and Cane Stalk, Hay, and Straw Cutter. Bertholf's machine is warranted, after a test of 3 years, to surpass any machine of the kind ever offered in the United States,—strong words, but "FACTS are not assertions." It will cut, and leave in better condition, corn or cane stalks (almost any machine will cut hay or straw) and save 40 per cent. of material. It being impossible for the inventor to visit the different sections of the United States, he has concluded to offer State or County Rights to manufacture and sell his patent machines: a profit of 33 per cent. can be readily realized by manufacturing. Sales are unlimited. For information in regard to State or County rights. Address (post-paid) ENGELBRECHT & HOOVER, Attorneys and Agents for the Patentee, 257 Broadway, New York. 19 4*

A. B. WILSON'S SEWING MACHINE, justly allowed to be the cheapest and best now in use, patented November 12, 1850; can be seen on exhibition at 195 and 197 Broadway (formerly the Franklin House, room 23, third floor), New York. Rights for territory or machines can be had by applying to

19 4* WM. S. LOVELL, Agent.

THE EXCELSIOR Sand and Emery Papers, are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers. These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 187 Water street, New York. WM. B. PARSONS,

14 6m*. Sole Proprietor.

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post paid) MUNN & CO.

At this Office.

FOR SALE—An Iron Foundry, with Patterns, Flasks, &c.; also engine and other lather, upright and horizontal drills, machinery, tools, &c. The foundry building is 63 by 34 ft., with a projection for cupola, and is well fitted for doing a large amount of business. There is also connected with the same a Blacksmith and Pattern Shop. Water power is used, and a large amount can be had at a reasonable rent. Persons wishing to engage in this profitable branch of business, will find it for their interest to call and examine the premises. Terms of payment made satisfactory. For particulars inquire of

SAML. DEMING.
Farmington, Ct., 1851. 18 4*

TO MACHINISTS.—William B. Parsons, Manufacturer of the "Excelsior" Sand and Emery Paper, has on hand a very superior article of Corundum, suitable for emery purposes. This has been thoroughly tested at the Nashua Lock Works, Nashua, New Hampshire, and proved to be second only to emery, and perfectly free from dust and extra grains of grit. For sale in any quantity, and all numbers, at 187 Water st, N. Y. WILLIAM B. PARSONS.

20 4*

NOTICE—DISSOLUTION.—The firm of BLANCHARD & PARSONS is this day DISSOLVED by mutual consent. The business of the firm will be settled by Wm. B. Parsons.—New York, Jan. 12, 1852.

THOMAS LEGGET, JR.,
E. BLANCHARD,
WM. B. PARSONS.

The manufacture and sale of the Excelsior Sand and Emery Paper will be continued by WM. B. PARSONS, No. 187 Water st., New-York. 20 2*

VENTILATION.—Mr. Ruttan, of Coburg, Canada, is desirous of an opportunity to direct the erection (for ventilation) of a good dwelling or school house in the city of New York. For particulars inquire at the Scientific American Office. 15 10*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 9tf

BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 5tf

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J. 7 20*

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.

QUARTERMAN & SON, 114 John st.,
9tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 13 tf

WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz., Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 208 Broadway. 17 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 37tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 10tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,

14tf. THOMAS J. FALES.

McCORMICK'S PATENT REAPERS AND MOWERS.—1700 of these machines, for which the great Medal of the World's Fair was awarded, are being manufactured at Chicago, Ill, with the intention of supplying the South-eastern States for the next harvest. The gold medal of the Chicago Institute was recently awarded for this Reaper and Mower, tested against two other mowers, in cutting prairie grass; and the first premium of the State Agricultural Societies of Wisconsin, Michigan and Pennsylvania, were also awarded at their late Fairs. Price $120 at Chicago, and $122 delivered at Philadelphia; terms otherwise accommodating. 9tf

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11tf

HAWKIN'S Stave Dressing Machine—Is now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready for the truss hoops, and at one operation. Rights for States and Counties, and also machines, for sale, apply to WM. HAWKINS, Patentee, Milwaukie, Wis. 15 20*

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

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SCIENTIFIC MUSEUM.

(For the Scientific American.)

Caloric, or Latent Heat.

All bodies (unless water at the temperature of about 39° be an exception, which is not yet well ascertained) expand with each and every increase of heat, and contract again when their temperature diminishes. If a metallic bar, at a given temperature, pass through a hole and fill a space lengthwise between two fixed points when cold, it will neither enter the hole nor lie between those points when heated. Hence iron rails, laid down in cool weather, must not touch each other, or else they will burst from their fastenings when the weather becomes warm. When metallic, or even wooden bars or chains are used for measuring distances, accurately, allowance must be made for changes of temperature. And, in all time-pieces, compensation must be made in the pendulum, or in the balance-wheel, for variations of temperature, by uniting several rods in such a manner that one set will shorten the pendulum just as much as the other lengthens it; and by uniting substances in the balance-wheel that expand in different degrees with the same temperature, so as to enlarge or diminish one part of the wheel always in the same proportion as the other part decreases or increases. All bodies also possess the capacity of rendering a certain quantity of heat, under all given temperatures, insensible (latent), and of this latent heat (caloric) no body can be totally deprived by any means known; it can only be diminished by exposing bodies to intense cold, or by powerfully compressing them. To the quantity of heat remaining in bodies, and the rapidity with which they are cooled, is to be attributed, in a great measure, their consistency or the form in which they appear, whether aeriform, fluid, liquid, solid, hard, soft, flexile, tenacious, fragile, elastic, &c.

When iron ore is melted in a furnace, and the iron suffered to cool very suddenly, it is called pig iron, which is hard and cannot be bent on account of its fragility. To render it soft, flexible and tenaceous, it is again heated in a forge, hammered or rolled, and suffered to cool more slowly, that the crystalline particles, called the grain, may have time to arrange themselves into regular order, its porosity obliterated, and the impurities purged away; and it is then called wrought-iron, which contains a considerable quantity of caloric. If bars of wrought-iron be exposed for some time to intense heat in contact with charcoal, which has a stronger affinity for heat than iron, the bars shrink and become hard again in consequence of the loss of caloric; and we then call them steel, which possess the property of elasticity in addition to those of hardness and flexibility, and may be re-converted into soft iron by repeatedly heating and cooling it slowly, for every time it is cooled it retains a little more caloric than it had before. If glass, when first made, be suffered to cool quickly, it becomes extremely fragile, because the surface cooling soonest shrinks and sets quickest, so as to cause irregular tension between it and that which it covers. To avoid this, glass vessels are set into a hot oven, called the annealing furnace, before they get cool, which is suffered to cool slowly. If a glass vessel is heated in one part while another part remains cool, especially if the glass be thick, the heated part will expand and tear the part which is not heated; and very thick glass will be ruptured though if every part be not equally exposed to heat, because the surface will be heated more than that which it covers. A stopple which has become fixed in a glass bottle, may be loosened by wrapping a cloth wet with hot water around the neck of the bottle.

Heat has been, and is still, supposed by some to be immaterial, because it cannot be weighed. But how an immaterial substance can expand a material one, by entering its pores, or how it can expel matter from a vessel, or be itself expelled from a material substance by diminishing the volume of this, is, to say the least, unintelligible. Heat a glass retort over a spirit lamp, and plunge the beak of it perpendicularly into a vessel of water, and you will see the water rise into and fill the retort, except a small bubble of air—no more than may have been set free from the water by heating it. This experiment shows that the heat had entered the retort and driven the air out of it, for it can be demonstrated that the heat employed was not sufficient to expand the small bubble of air so as to fill the retort against the external pressure of the atmosphere. Again, fit a small metallic tube with an air-tight piston, to the end of this piston fasten a little tinder, drive it forcibly into the tube by a blow with your hand, and on withdrawing the piston quickly, you will find the tinder set on fire by the latent heat pressed out of the air contained in the tube. Lastly, it is well known that the latent heat contained in metals may be made sensible by condensing the metal with a hammer.

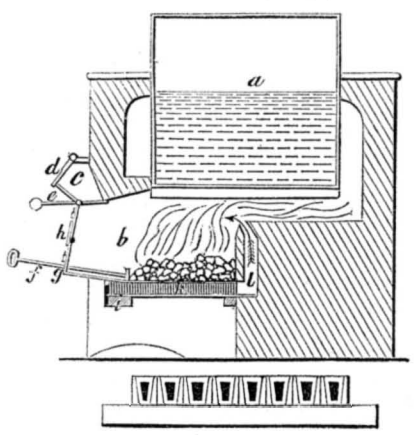
The latent heat is of the utmost consequence in God's works. Indeed we cannot conceive in what form matter could exist without it, because we cannot entirely separate it from any substance. But we do know that, if it were not for latent heat, there could be no water in the liquid form, and consequently no vapor, rain, snow, nor hail. The earth would consequently be a barren desert on which living beings could not exist; and it is extremely likely that all substances would exist in forms of the solid rigidity, which sensible heat, if indeed that could exist, could never dissolve. Nor is the varying capacity of different substances for latent heat of much less consequence to mankind; for, if oil and wax, for instance, possessed the same capacity, they would exist in the same form. If wood and iron had the same, the former could not be bound by the latter, as in the wagon wheel, and if the same substance always possessed the same capacity under the same surrounding temperature, and other circumstances being the same, iron could not be transformed into steel.

H. R. Schetterly.

Howell, Mich.

On Boilers.---No. 11.

Fig. 20.



Hollow Grate Bars.—The engraving, fig. 20, represents a furnace and boiler, in vertical section, of a patent granted in 1824 to Mr. George Chapman, of Whitby, England. The object of it was to provide a method of mixing air with the smoke,—to make a smoke-consuming furnace, and also to heat the air before it entered the furnace. The grate bars were hollow from end to end, as represented by the transverse section below.

The grate bars are cast hollow, from end to end, so that they form a series of parallel tubes, which open into two boxes, one placed in front and the other behind the grate. In the front box, directly underneath the fire-door, there is a register to open and shut, to any extent, at pleasure. The other end is connected with the brick-work, directly under the fire-bridge, which fire-bridge is made double, with a small interval between, about one inch, the interval to go across the furnace from side to side, and rather to incline forward, or towards the fire-door, so as to meet and reverberate the smoke on to the ignited fuel in the grate, which causes it to inflame and become a sheet of bright fire under the bottom of the boiler; if the front register is open, or partially so, there will be a great draught of air through it, along the interior of the grate-bars, thence into the flue of the fire-bridge, and out of the orifice at top, which air will be heated in its passage through the bars, before it comes in contact with the smoke, when it will give out its oxygen, and cause it to inflame.

There is a cast-iron hopper above the fire-door, with a type at the bottom that has two pivots at one side, and opens at the other; one pivot goes through the end of the hopper, and has a counter lever to keep the type shut, when a sufficient quantity of coal for a charge is on it. The top of the hopper is covered with a lid, which is shut down during the time of firing; then, by lifting the lever which opens the type inside, the coal slides down on the fore end of the grate-bars.

The coal last admitted, after laying a short time at the front of the more ignited fuel, becomes partially coked, and just before a fresh supply is admitted, the last charge is pushed further along the grate.

a is the boiler; *b* is the fire-place; *c* is the feeding hopper with its cover, *d*, and its type or turning bottom, with its lever or counterpoise, *e*, by means of which the coal is delivered in the fire-place. *f* is a rake, by means of which the half-burnt coals are pushed forwards previously to letting in a fresh charge; *g* is a slit below the furnace-door, through which the shaft of the rake passes; *h* is an eye-hole in the furnace-door, through which the state of the fire is seen; *i i* an air-tight box, into the back of which the bars open and in front of which is a register for the admission of air; *k* is one of the hollow bars, the whole of which are shown in section as they open into the box, *i*, above-mentioned; *l* is a flue in the fire-bridge, through which the air having passed into the box, *i*, and thence through the hollow bars, *k*, passes into the furnace and consumes the smoke.

Origin of Tea.

The following story concerning the origin of tea goes current among the Chinese. Darma, the son of an Indian king, came into China about the year 519 of the Christian era, purely to promulgate his religion; and to gain it the better reception, he led a very austere life, eating only vegetables, and spent most of his time in contemplation of the Deity. The nights, especially, were devoted to this exercise, pursuant to a vow he had made against sleeping. After continual watchings for several years, sleep overcame him; but, on waking, such was his remorse and grief for having broken his vow, that in order to prevent a relapse, he cut off his eye-lids, as the instruments of his crime, and with indignation threw them on the ground; but the next day he found them metamorphosed into two shrubs, now known by the name of Chaa or Tea. Darma, eating some of the leaves, felt himself not only more sprightly than usual, but such was the vigor imparted to his mind by these leaves, that his meditations became more fluent, pithy, and exalted, and without any lassitude. The preacher was not dilatory in acquainting his disciples with the excellent virtues of these shrubs, and accordingly the use of them became universal.

A Predicament and Escape on a Railroad.

All who have been over the Connecticut River Railroad remember the high, narrow, uncovered bridge over the Deerfield river, just this side of Greenfield. It was the theatre of what our heading describes, as the afternoon train came down on Saturday. The cars, behind time, were passing rapidly ahead, and a footman found himself near the middle of the bridge, as they approached with lightning speed. He could not get off the bridge at either end before they would be upon him,—the space at the side of the track was too narrow, and sloped too precipitately to make it a safe resort—the jump to the ice below, even Sam Patch would have shrunk from—the shrill alarm of the thundering engine warned our hero that he must think and act quick, there was a trough-like space under the track he drove into it between the rails, and hugging his narrow retreat, the train swept over him, and left him unharmed. But what must have been his emotions between the discovery of his danger and its passage? How thought must have quickened and the blood chilled! Not all in his situation would have had the presence of mind that secured the only retreat left him.—[Springfield Republican.

Homestead Law in New Jersey.

The Legislature of New Jersey has passed a general act, incorporating Homestead and Building Companies. By this law, any number of persons may associate together and form a company, by the payment of one dollar per month, which fund is invested in the purchase of houses, and sold to members, subject to a yearly rent for twenty years. The income from these houses, and the monthly payments, are again invested, and more houses sold, and so continued until all the members shall obtain dwellings, paid for by a monthly saving of a dollar. Married women and minor children are allowed to become members, and thus find a safe investment of their small savings.

LITERARY NOTICES.

Templeton's Engineer and Milwright's Companion.—This work, so well and so long favorably known to us, has been republished by D. Appleton & Co., this city, and the engraving, printing, and paper does them credit. The first edition of Templeton's work was published in London a number of years ago. The author, Wm. Templeton, is a practical engineer, and his work is a good one; but we could have wished that Robert Brunton had received more credit for much of his matter. We have been greatly indebted to foreign practical mechanics for works of this kind. We wish to give them our thanks, and due credit for what they have done. This work of Templeton's has very little to say upon the American practice of millwrighting, but the editor has, no doubt, given us all that could be expected from him. It is a work which should be in the hands of all our mechanics. It is edited by Julius W. Adams, C. E.

Narratives of Sorcery and Magic, from the most authentic sources, by Thomas Wright, M. A. Published by J. S. Redfield, Clinton Hall—pages 420. In his dedicatory preface to Lord Londesborough, the author complains of our historians for omitting examples of the manner in which the public mind may, under particular circumstances, be acted upon by erroneous views.

The details of strange hallucinations which have at times disfigured the community, constitute an interesting subject for the human mind to consider. It would have been pertinent to the work, if the author had seen fit to introduce the Rochester and Stratford imposition, and the effects it produced. It is as dark as any chapter in this entire volume. This work is at once instructive and interesaing, and Mr. Redfield has put it forth in an unexceptionable style, and we hope it may be largely and beneficially read

Journal of the Franklin Institute.—This old and respectable Journal commenced its 63rd volume with its January number. It is a work devoted to science and the mechanic arts. It has long held a most important place in the scientific literature of our country. It is published once per month, and its price is $5 per annum. It is ably edited by Prof. Frazier, and it has a host of learned contributors, and is a standard work of inestimable value.

Household Words, a weekly Journal, conducted by Charles Dickens, is regularly published by Messrs. Angell, Engell & Hewitt, Tribune Buildings. $2,50 per annum.

American Phrenological Journal, for February, comes to us stored with a great amount of interesting and useful matter. The Water Cure Journal is also well filled. Both of these Journals are issued monthly, at $1 per annum each. Published by Fowler and Wells, New York.

Kossuth in England.—The notice of this work, sold by Dexter & Brother, 43 Ann st, this city, in our last number, gave the price at 25 cents. It should have been 50 cents.

American Railway Guide, by Curran, Dinsmore & Co., 22 Spruce street. This valuable traveller's guide book through the States, is still issued, and is indispensable to all who would save themselves trouble and annoyance in journeying. We have found it eminently serviceable.

INVENTORS

Mechanics and Manufacturers

Will find the SCIENTIFIC AMERICAN a journal exactly suited to their wants. It is issued regularly every week in Form suitable for Binding. Each number contains an Official List of PATENT CLAIMS, notices of New Inventions, Chemical and Mechanical; Reviews, proceedings of Scientific Societies; articles upon Engineering, Mining, Architecture, Internal Improvements, Patents, and Patent Laws; Practical Essays upon all subjects connected with the Arts and Sciences. Each Volume covers 416 pages of clearly printed matter, interspersed with from Four to Six Hundred Engravings, and Specifications of Patents. It is the REPERTORY OF AMERICAN INVENTION, and is widely complimented at home and abroad for the soundness of its views. If success is any criterion of its character, the publishers have the satisfaction of believing it the first among the many Scientific Journals in the world.

Postmasters, being authorized agents for the Scientific American, will very generally attend to forwarding letters covering remittances.

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N. B.—The public are particularly warned against paying money to Travelling Agents, as none are accredited from this office. The only safe way to obtain a paper is to remit to the publishers.

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